# ESTIMATION OF FIRST TRIMESTER SERUM URIC ACID LEVELS AS A PREDICTOR OF PREECLAMPSIA AMONG SINGLETON PREGNANT PATIENTS ATTENDED OVER A ONE YEAR PERIOD AT A TERTIARY CARE INSTITUTION.

**- A PROSPECTIVE COHORT STUDY**

**Dissertation submitted to**
**THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY**

**In partial fulfilment of the requirement**
**for the award of**

**M.S.DEGREE - OBSTETRICS & GYNAECOLOGY**


## KILPAUK MEDICAL COLLEGE

## KILPAUK,CHENNAI-10

**MARCH 2014.**

# CERTIFICATE

This is to certify that the dissertation entitled "ESTIMATION OF FIRST TRIMESTER SERUM URIC ACID LEVELS AS A PREDICTOR OF PREECLAMPSIA AMONG SINGLETON PREGNANT PATIENTS ATTENDED OVER A ONE YEAR PERIOD AT A TERTIARY CARE INSTITUTION -PROSPECTIVE COHORT STUDY" is the bonafide original work of Dr.Baluswamy Gayathriunder the guidance of Dr.G.Geetha, M.D.,D.G.O., Associate Professor of department of obstetrics and gynaecology, KMCH,Chennai in partial fulfilment of the requirements for MS Obstetrics and Gynaecology branch II examination of The Tamilnadu Dr.M.G.R. Medical University to be held in March 2014.The period of Postgraduate study and training from May2011 to April 2014.

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INSTITUTIONAL ETHICAL COMMITTEE
GOVT.KILPAUK MEDICAL COLLEGE,
CHENNAI-10
Ref.No.9677/ME-1/Ethics/2012 Dt:01.11.2012.
CERTIFICATE OF APPROVAL

The Institutional Ethical Committee of Govt. Kilpauk Medical College, Chennai reviewed and discussed the application for approval "A descriptive study of first trimester patients with elevated serum uric acid and their Preg. & Neonatal outcome" – For Dissertation Pupose. submitted by Dr.Baluswamy Gayathri, MS (O&G), PG Student, KMC, Chennai-10.

The Proposal is APPROVED.

The Institutional Ethical Committee expects to be informed about the progress of the study any Adverse Drug Reaction Occurring in the Course of the study any change in the protocol and patient information /informed consent and asks to be provided a copy of the final report.

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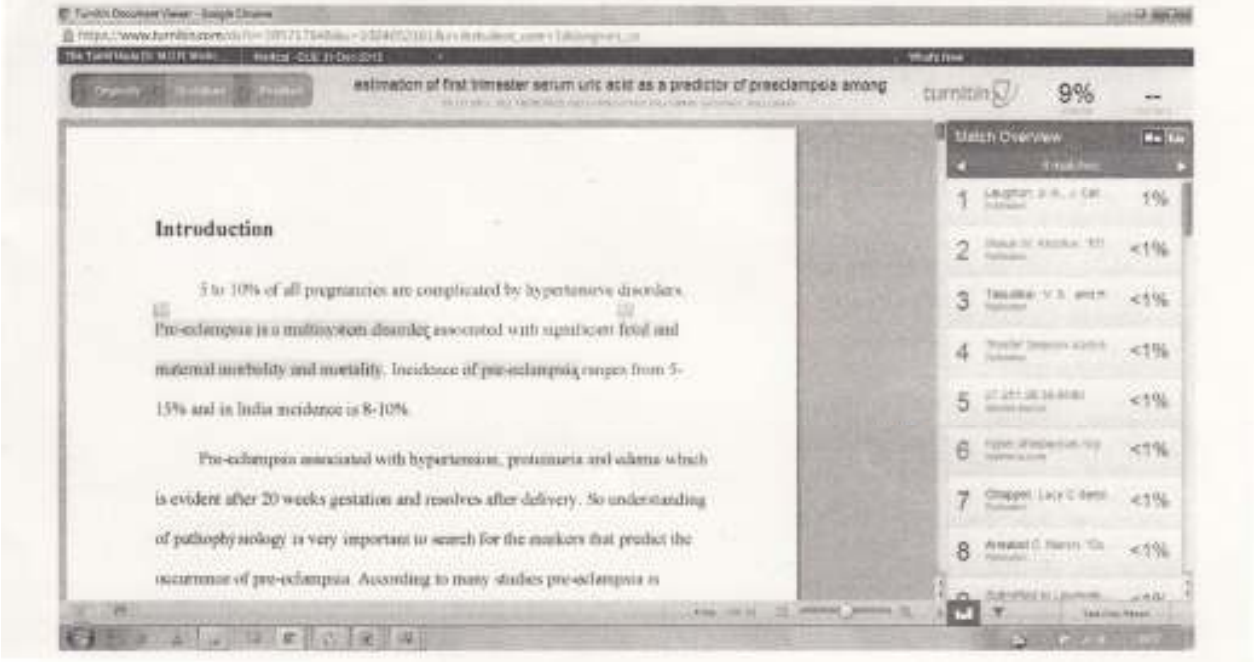
01 DEC 2012
Kilpauk, Chennai-10.

CHAIRMAN, 1/12/12
Ethical Committee
Govt.Kilpauk Medical College,Chennai




## Introduction

5 to 10% of all pregnancies are complicated by hypertensive disorders. Pre-eclampsia is a multisystem disorder associated with significant fetal and maternal morbidity and mortality. Incidence of pre-eclampsia ranges from 5-15% and in India incidence is 8-10%.

Pre-eclampsia associated with hypertension, proteinuria and edema which is evident after 20 weeks gestation and resolves after delivery. So understanding of pathophysiology is very important to search for the markers that predict the occurrence of pre-eclampsia. According to many studies pre-eclampsia is

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## - A PROSPECTIVE COHORT STUDY

ABSTRACT:

It is a prospective study conducted on 197 antenatal women with singleton pregnancy attended antenatal op over a one year period at KMCH. Uric acid was measured from maternal plasma samples that were collected at a mean gestational age of 11.2 weeks. High first trimester serum uric acid was associated with increased risk of preeclampsia but not gestational hypertension. There was no linear association between first trimester uric acid and small for gestational age. There was no linear association between first trimester uric acid and preterm delivery.

# Introduction

5 to 10% of all pregnancies are complicated by hypertensive disorders.Preeclampsia isa multisystem disorder associated with significant fetal and maternal morbidity and mortality.Incidence of preeclampsia ranges from 5-15% and in Indiaincidence is 8-10%.

Preeclampsiaassociated with hypertension,proteinuria and edema which is evidentafter 20 weeksgestation andresolvesafter delivery.So understanding of pathophysiologyis very important tosearchfor the markersthatpredictthe occurrence of preeclampsia.According to many studies preeclampsia is associated with abnormal placentation and endothelial dysfunction.

Predictive tests will enable to discriminatehigh risk and low risk patientstodevelop preeclampsia.Itwill also identify the patients who may developclinically significant diseaseso it may help to identifythose patientsfor targeted prophylaxis once a therapy is identified.

Serum uric acid in first trimester can be a good predictor of development of preeclampsia and its estimation is a simple biochemical screening test to predict the development of preeclampsia.

Hyperuricemiais associated with manycomplications such as hypertension,metabolic syndrome,chronic kidney diseaseand diabetesin non-pregnant adults.They are high risk factors for the development of

Preeclampsia.Hyperuricemia frequently occurs before the development of hypertension and proteinuria in pregnancy.

Serum uric acid isnotonly biomarkerfor the preeclampsia,it can also play an important role in the pathogenesis of preeclampsia.So it was found to have a pathogenic role in the development of preeclampsia.Serum uric acidis a simple screening test in the first trimester to predict high risk patients who are prone to develop preeclampsia.

Preeclampsia is responsible for 16% of maternal mortality even in developed countries according to World Health Organization (WHO).We can prevent 50% of these preeclampsia related deaths.

Thus early identification of high risk pregnancies may enhance development of new strategies for antenatal monitoring to detect the disease at earliest.So we can intervene appropriately to improve maternal and perinatal outcome.

# Review of Literature

Hypertension is the second most common cause of maternal mortality.Preeclampsia is a multisystem disorder affecting every organ in the body.According to International Society for the Study of Hypertension in Pregnancy (ISSHP), Hypertension is defined as systolic blood pressure of >140mmHg or diastolic blood pressure of 90mmHg.

A rise in the systolic blood pressure of 30 mmHg or a rise in the diastolic blood pressure of 15mmHg, at least 4 hours apart or a single diastolic blood pressure >110mmHg is also considered as hypertension.

Blood pressure gradually decreases to a nadir between 14 and 24 weeks innormal pregnancy and increased to pre-pregnancy levels in third trimester and the fall in blood pressure is due to reduced vascular tone which leads to peripheral vasodilation.

Classification of hypertension disorders complicating pregnancy adopted by the ISSHP [international society for the study of hypertension in pregnancy] are as follows

- Gestational hypertension
- Preeclampsia
- Chronic hypertension
  - Essential
  - Secondary

- Preeclampsia superimposed on chronic hypertension.

## Gestational Hypertension

New onset hypertension without proteinuria developing after 20 weeks of gestation in a previously normotensive non-proteinuric women and the blood pressure returns to normal with in a 12 weeks postpartum.

## Preeclampsia

Hypertension associated with proteinuria >0.1g/L or more in at least 2 random urine specimens collected at least 6hours apart or >0.3g/dl in a 24 hour collection in a previously normotensive non-proteinuric women developing after 20 weeks of gestation and returns to normal by 12 weeks postpartum.

## Chronic Hypertension

Defined as hypertension developing before 20 weeks of gestation without an apparent underlying cause or secondary to renal,endocrine or vascular disorders.

## Chronic Hypertension Superimposed Preeclampsia

New onset proteinuria in a woman with chronic hypertension after 20 weeks of gestation.

## Incidence

Incidence of hypertensive disorders of pregnancy is about 15-20% of all pregnancies.

Preeclampsia-3 %-8%

## Risk Factors

- Nulliparity/primipaternity/teenage pregnancy
- Genetic predisposition
- Increased maternal age
- Multifetal gestation
- Hydatidform mole
- Triploidy
- Hydrops fetalis with large placenta.
- Preeclampsia in a previous pregnancy

- Chronic hypertension
- Renal disease
- Connective tissue disorders
- Obesity
- Insulin resistance
- Diabetes
- H/o thrombophilia
- Antiphospholipid syndrome
- Hyperhomocystinemia
- Sickle cell disease, sickle cell trait

## Etiopathogenesis

Preeclampsia is a disease of the placenta and the fetus is not required for the development of preeclampsia.

The following mechanisms contribute to pathogenesis of placenta

- Shallow,endovascular cytotrophoblast invasion in the spiral arteries.

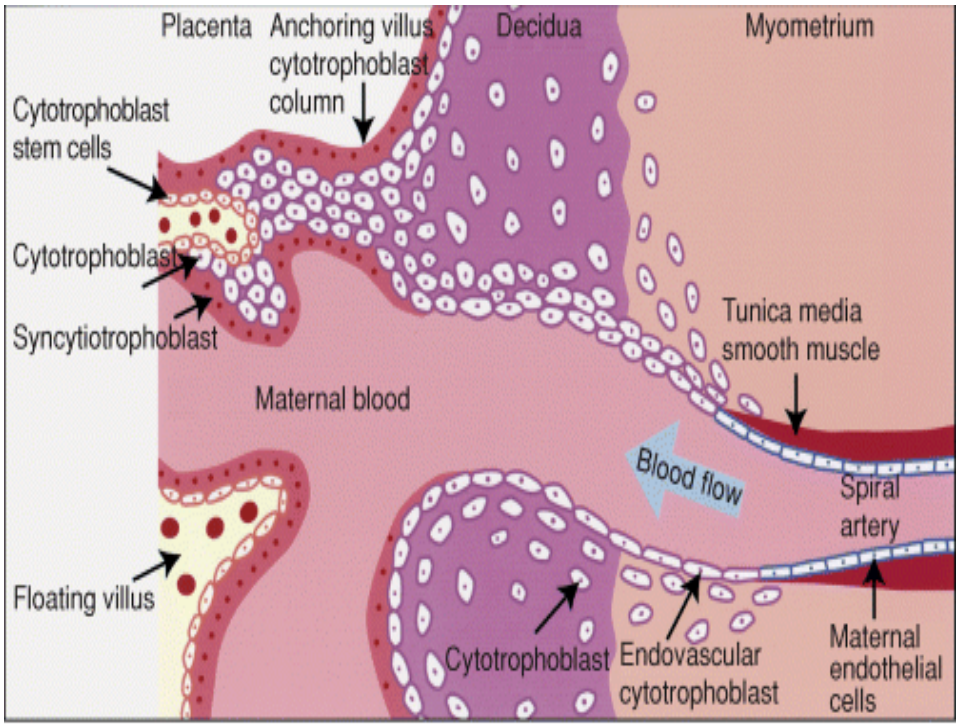
- Endothelial cell dysfunction.
- Immunological maladaptation tolerance to maternal, paternal and fetal tissues.
- Maternal maladaptation to cardiovascular or inflammatory changes of normal pregnancy
- Genetic predisposition.
- Hyperexaggerated inflammatory response.

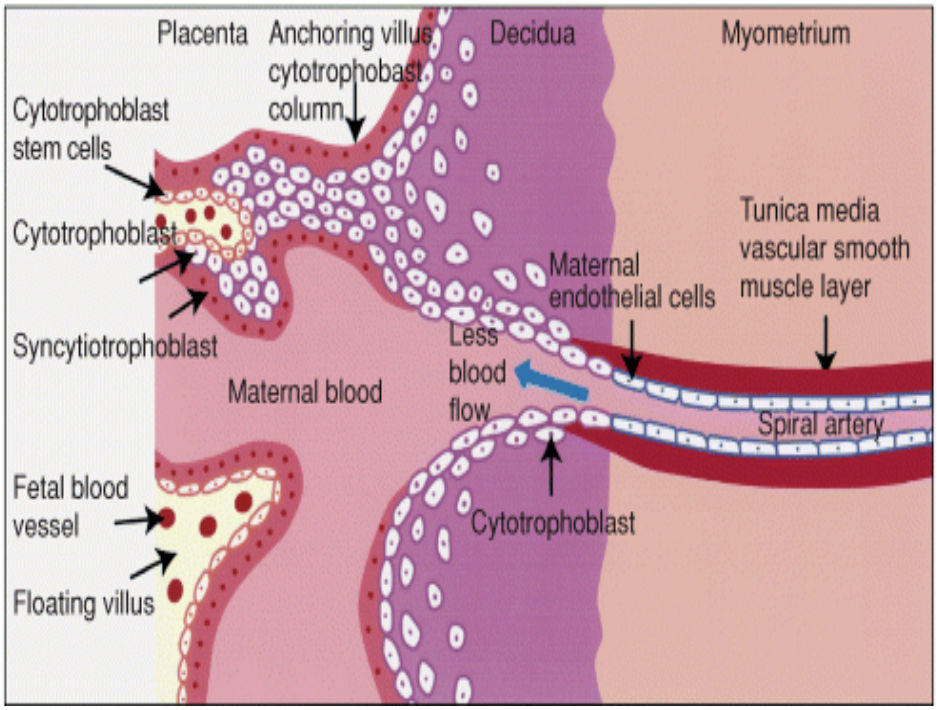
Preeclampsia is a two stage disorder associated with abnormal placentation and second stage of clinical disease maternal hypertensive syndrome.

## Abnormal Placentation

The embryo derived cytotrophoblasts invade the maternal uterine wall during normal placentation and the cytotrophoblasts are found in the smooth muscle and endothelial layers of maternal decidual arteries after invasion.

Figure 1 indicates normal and abnormal placentation respectively

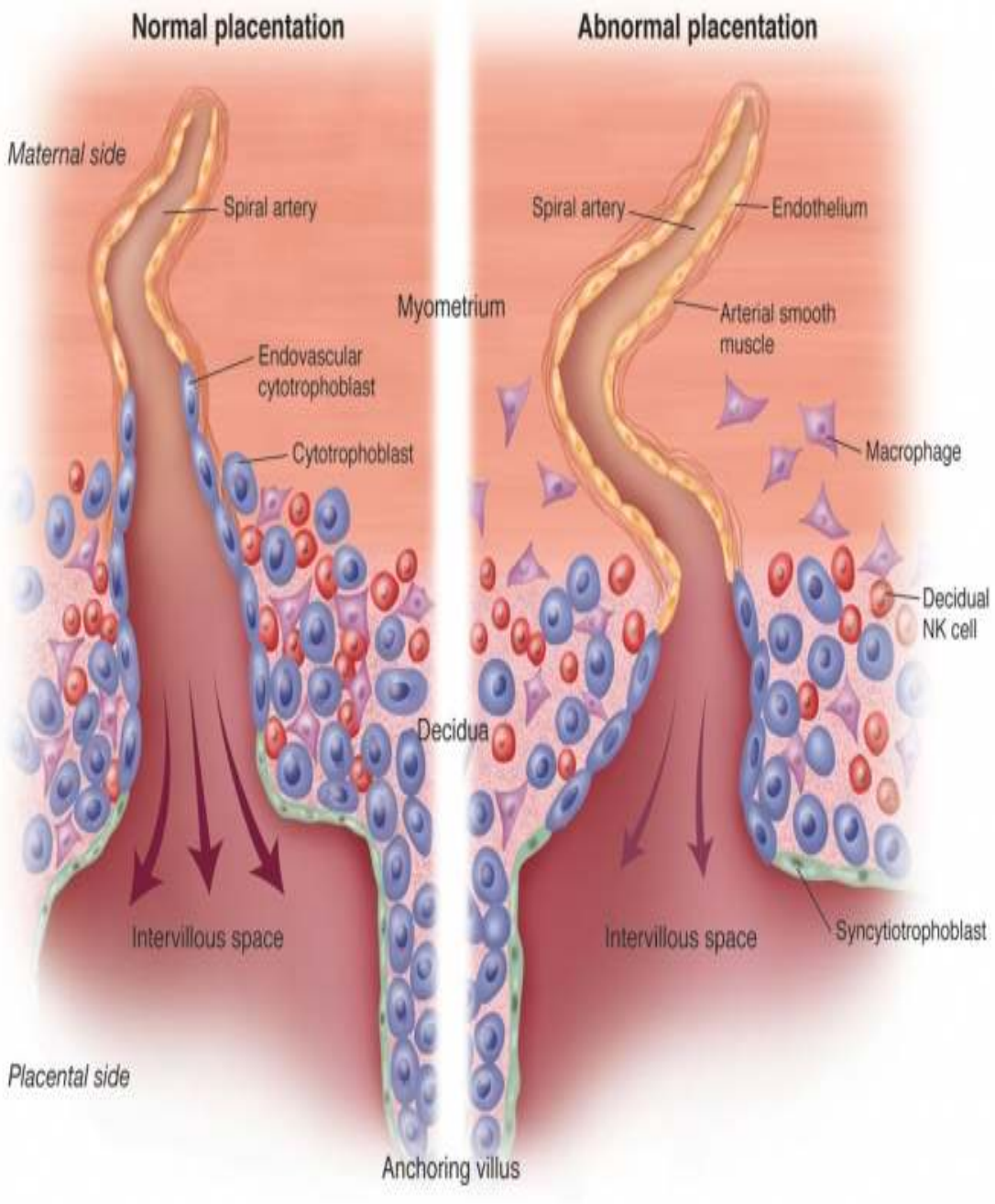


The remodelling of maternal vessels into the highcapacitance and low resistance vessels which provides access for maternal oxygen and nutrients for the developing fetus and this process is demolishedin preeclampsia.

There is incomplete invasion of the trophoblasts which results in narrow bore constricted, high resistance vessels.The shallow invasion of cytotrophoblasts may result in the failure of cytotrophoblasts to adopt an endothelial adhesion phenotype.

Figure 2 indicates normal and abnormal placentation respectively



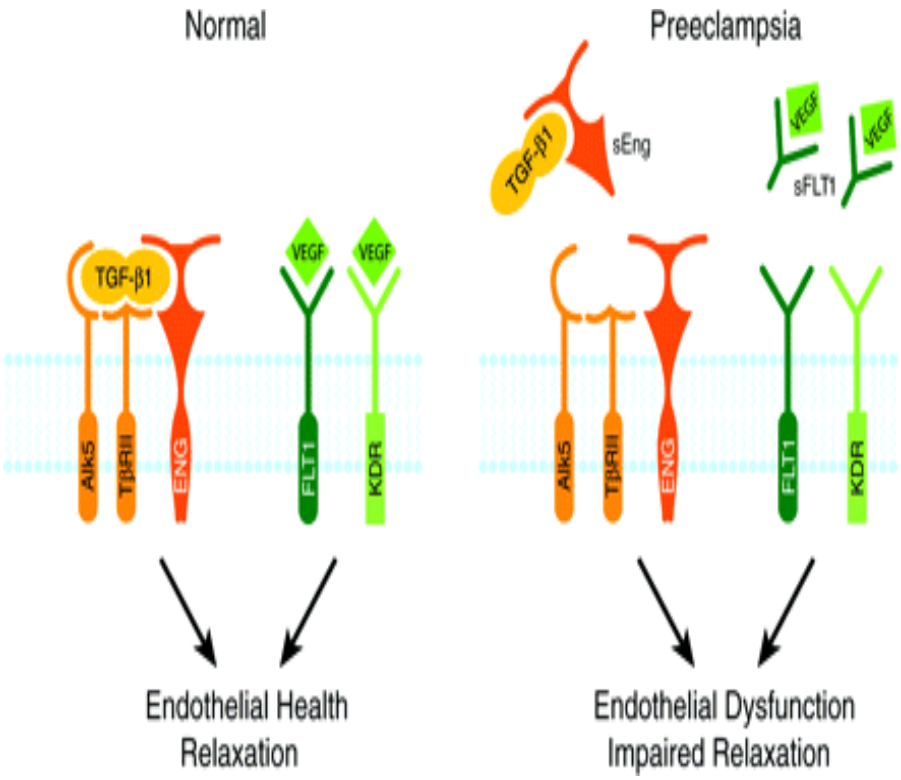
Hypoxia may also contribute to abnormal placental development because under hypoxia there is failure of invasion of trophoblasts in vitro and the hypoxia leads to release of placental debris into the maternal circulation inciting a systemic inflammatory response. So there is high risk of preeclampsia in women who are living at high altitude.

Endothelial cell dysfunction caused by imbalance between prostacyclin and thromboxane.Recently circulating anti-angiogenic proteins have been implicated in the pathogenesis of placenta.

Roberts and Taylor advanced the hypothesis that preeclampsia result from the release of circulating factors leading to widespread endothelial dysfunction.All markers of endothelial injury,fibronectin,factor 8 antigen and thrombomodulin have been reported to increase in patients with preeclampsia.

sFlt-1 (soluble fms like tyrosine kinase)is an anti-angiogenic factor is a potent inhibitor of VEGF and PIGF may play a causal role in the pathogenesis of preeclampsia and it is increased in placenta and blood of preeclampsia patients with onset before 37 weeks , severe preeclampsia patients,preeclampsia with delivery of small for gestational age.

Figure 3 indicates role of angiogenic and anti-angiogenic factors in normal and preeclamptic patients respectively.

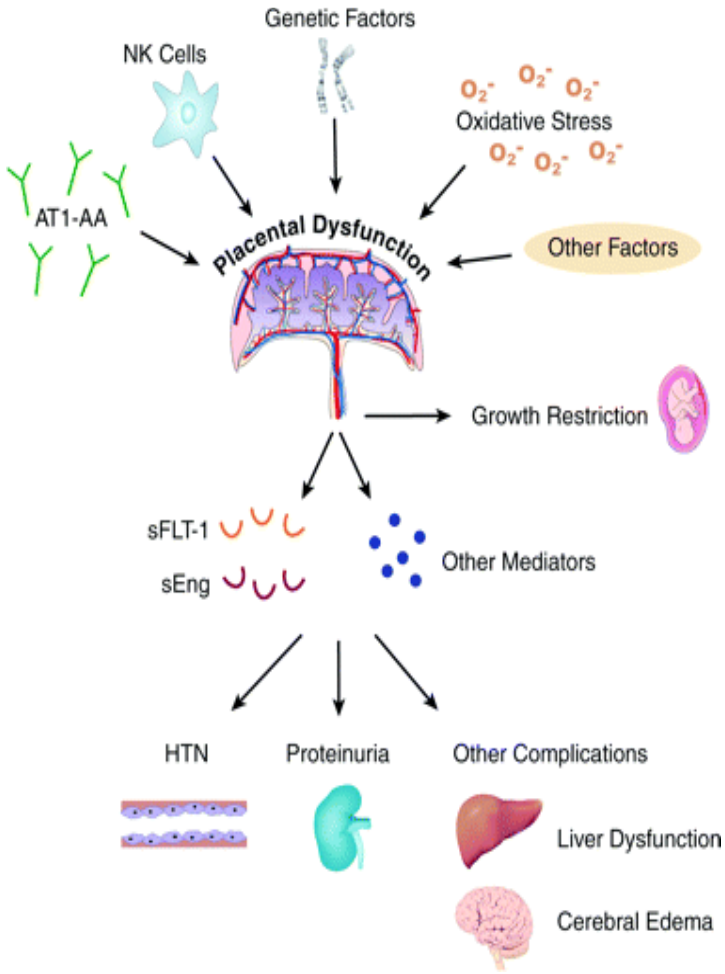



But sFlt-1 levels were increased only within 5 weeks before the onset of hypertension and proteinuria.

Another anti-angiogenic protein sEng soluble endoglin combine with sFlt1 to induce the features of severe preeclampsia and it begins to rise after 20weeks of gestation and rise more steeply after 33 weeks in women of preeclampsia patients.

The concentration of free PIGF is reduced in preeclampsia and PIGF concentration begins to decrease 9-11weeks before the onset of preeclampsia.Other angiogenic factors like VEGF lower in severe preeclampsia patients.Factors like sFlk-1 (SVEGFR-2) levels found to be lower in preeclampsia patients compared to other patients.

Figure 4 indicates pathogenesis of preeclampsia



Immunologic maldysfuncion at maternal fetal interface may contribute to pathogenesis of preeclampsia and the pathologic examination of preeclamptic patients shows increased dendritic and macrophage infiltration and signs of chronic inflammation.

Decidual natural killer cells involvedin trophoblastic invasion which promote angiogenesis may contribute to abnormal placental development in preeclampsia.

Other mechanisms like increased angiotensin sensitivitydue to angiotensin receptor autoantibodies contribute to pathogenesis of preeclampsia.Alterationin placental enzymes like deficiency of 2-methoxyestradiol involved in pathogenesis of preeclampsia.

Heme oxygenase is a negative regulator of sFlt1 production elevated in smokers which reduces the risk of preeclampsia in smokers.

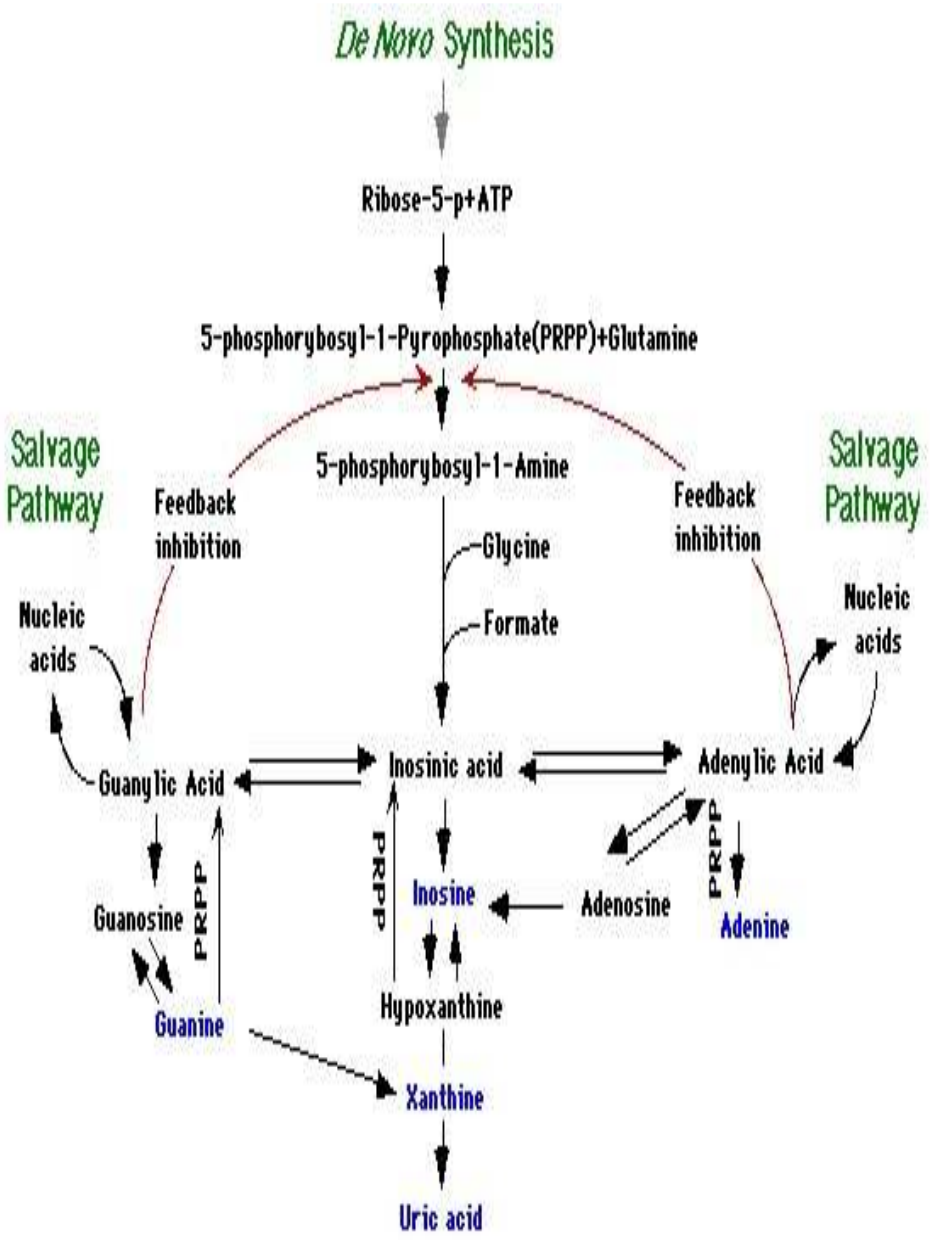
## Role of Uric Acid in the Pathogenesis of Preeclampsia

Uric acid is an end product of metabolism of purine compounds and its daily synthesis is about 400mg and from dietary sources about 300mg. Normal uric acid pool in males is about 1200 mg and in females is about 600 mg.

75% of serum uric acid is excreted in urine and its remainder is degraded to allantoin in the gastrointestinal tract by the bacterial enzymes. 98-100% of uric acid is reabsorbed in proximal convoluted tubule and it is secreted into the distal proximal convoluted tubule and further it is absorbed in to the distal convoluted tubule.

Net excretion of uric acid is 6-12% and normal serum urate level in males ranges from 2.5-8mg/d and in females ranges from 1.9- 7.5mg/dl.

Figure 5 indicates synthesis of uric acid from purines




Normally Serum uric level in healthy pregnancies decreases from an average of 4.2mg/dl pre-pregnancy to 3.1 +/- 1.1mg/dl in the first trimester and slowly increases during gestation to an average of 5.2 mg +/- 1.2mg/dl from 35 weeks of gestation to term.

In pregnancy uric acid excretion is disproportionately larger than increase in filtered load , so net reabsorption of uric acid is reduced in normal pregnancy hence fall in serum uric level.

The excretion of serum uric acid remains constant as thepregnancy advanceseven though there is gradual increase in filtered load.

Uric acid contribute to pathogenesis of preeclampsia by following mechanisms

Uric acid activates the inflammation in the trophoblast and IL-1 beta production which induces inflammation at the maternal fetal interface leading to placental dysfunction and preeclampsia.

- Inhibit endothelial function
- Induce oxidative stress
- Increases systemic blood pressure
- Induces insulin resistance
- Uric acid also inhibits fetal angiogenesis.

## Placenta

Characteristic pathophysiologic change is atherosis.Characterized by fibrinoid necrosis,macrophages and mononuclear cell infiltration.

## Cardiovascular System

Cardiac changes in preeclamptic patients are increased cardiac afterload and increased cardiac preload and hemoconcentration.Hemoconcentration is due to generalised vasoconstrictionthat follows endothelial activation and leakage of plasma into interstitial space.

## Hematology

Thrombocytopenia is most common finding and less than one lakh platelet count indicates severe disease.Severe preeclampsia is characterized bymicroangiopathic haemolytic anaemia and associated with FACTOR 8 consumption,increased levels of fibrinopeptides A and B,increased fibrin degradation products and decreased levels of antithrombin ,protein C and protein S.

## Kidney

Glomerular endotheliosis is the characteristic pathophysiologic change in the kidney. Glomerular endotheliosis occlude the filtration barrier due to fibrin deposition, so glomerular filtration is mildly reduced.

Main pathological change is glomerular and tubular dysfunction and responsible for proteinuria, reduction in glomerular filtration rate and creatinine clearance.

Acute renal failure rarely occurs which is caused by acute tubular necrosis.

Serum uric acid is elevated which is due to enhanced tubular reabsorption.Placental ischemia also causes hyperuricemia due to increased trophoblast turnover and production of purines

## Liver

Characteristic features are periportal haemorrhage in the periphery of the liver and increase in the liver enzymes SGOT and SGPT and clinical jaundice can occur.In severe preeclampsia serum transaminases are elevated.

The small haemorrhages combine to form subcapsular hematoma which stretches glissons capsule responsible for epigastric pain which is a very serious sign in impending eclampsia.

## Brain

Cerebral vasospasm is the main pathologic finding in brain.Cortical and subcortical petechial hemorrhages are the principal lesions.

In eclampsia cerebral haemorrhages, fibrinoid necrosis and thrombi can occur and secondary to endothelial dysfunction.Cerebral edema can also occur in eclampsia and cerebral haemorrhage which is a rare complication can occur in severe preeclampsia.

Visual changes like scotoma, blurring of vision or diplopia will occur in severe preeclampia or eclampsia are due to edema of occipital lobe.

Blindness arise from three potential areas

1. Visual cortex of occipital lobe
2. Lateral geniculate nuclei
3. Retina

Purscher retinopathyresulting from blindness caused by retinal ischemia and infarction.Cortical blindness can also occur due to occipital edema.

## Eyes

Commonest finding is localised retinal vasospasm and haemorrhages and papilloedema rarely seen in severe hypertension.

## Complications

Preeclampsia is a multisystem disorder affecting every organ in the body.

## Maternal

- Eclampsia
- Cerebral haemorrhage
- Cortical blindness
- Pulmonary edema
- Adult respiratory distress syndrome
- HELLP syndrome
- DIC and haemorrhage
- Acute renal failure.

- Hepatic rupture
- Abruptioplacenta and sudden postpartum collapse.
- Stroke
- Long term cardiovascular morbidity

## Fetal Complications

- Preterm delivery
- Fetal growth restriction
- Intrauterine death
- Long term cardiovascular morbidity associated with low birth weight

## Predictors of Preeclampsia

Many markers have been proposed as predictors for preeclampsia for early detection of high risk pregnancies to improve maternal and perinatal outcome.

- Biological, biochemical,biophysical markers of placental perfusion
- Markers of Vascular resistance
- Markers of placental - endocrine dysfunction
- Markers of oxidant stress
- Markers of endothelial dysfunction
- Markers of activated coagulation

But no single test is economical and sensitive.

1. **Diastolic Blood Pressure**

   Diastolic blood pressure prior to 20 weeks of gestation >85mmHg 93-97% specificity is more predictor of preeclampsia.

2. **Mean Arterial Pressure**

   Mean arterial pressure in the second trimester [18-26weeks] >90 mmHg is more predictor of preeclampsia.

   Specificity 68%

3. **Gants Roll Over Test** [supine pressor test]

The woman is turned from the left lateral to the supine position. If there is an increase in the diastolic blood pressure of 20mmHg or more, the test is considered positive

4. **Isometric Exercise Test**[hand grip test]

Increased systolic BP >15 mmHg

Increased diastolic BP >20mmHg

**5. Angiotensin Sensitivity Test**

It is based upon fact that women who destined to develop preeclampsia develop refractoriness between 28-32 weeks of gestation

If pressor response occurs with <8ng/kg/min of infused angiotensin,90% of the patients likely to develop preeclampsia.But this test is invasive.

**6. Uterine Artery Doppler**

Normallyin the non-pregnant state diastolic flow is decreased and notching of uterine arteries. In normal pregnancy diastolic notch disappears and flow increases due to trophoblastic invasion.

In preeclampsia second wave of trophoblastic invasion has not occurred and there is persistent of diastolic notch in the uterine artery at 20-22weeks of gestation which is predictive of

preeclampsia.Disappearance of the notch is more likely to predict that the pregnancy is normal.

**7. Pulse Wave Analysis**

Stiffness in the finger arterial pulse acts as apredictor.

8. Raised **Serum BETA HCG** at 14-20 weeks of gestation

Beta HCG is increased due to abnormal trophoblastic invasion. It is also increased due to placental dysmaturity. Increased production by hypoxic trophoblasts.

9. Tests related to **feto placental unit endocrine dysfunction**

- Alpha feto protein
- Estriol levels
- Inhibin levels
- Pregnancy associated plasma proteins
- Activin level
- Placental protein 13
- Corticotrophin releasing hormone

Other markers are

- Platelet count
- Sflt-1fms like tyrosine kinase receptor
- Endoglin

- Plasminogen activator inhibitor
- Neurokinin bp selectin
- Decreased levels of proangiogenic factors like vascular endothelial factor, placental growth factor,endothelial adhesion molecules

10. **Dyslipidemia** is also predictor of preeclampsia

Lipid markers are triglycerides,free fatty acids and lipoproteins are predictors of preeclampsia.

**11. Serum Uric Acid**

Uric acid is also one of the predictor of preeclampsia.Uric acidis elevated due to abnormal renal function,placental ischemia andtrophoblast turn over and production of purines and increased activity of the enzyme xanthine oxidase/dehydrogenase.

Hyperuricemia in pregnancy occurs before the onset of hypertension and proteinuria and found to have a pathogenic role in the development of preeclampsia.

Uric acid is a product of purine degradation catalysed by the enzyme xanthine ehydrogenase/xanthine oxidase and along with production of uric acid free radical superoxide is produced and contributes to oxidative stress.

Humans do not possess the enzyme uricase so uric acid clearance depends upon renal excretion.Uric acid is a potent mediator of inflammation.

## Uric Acid in Pregnancy

Uric acid concentration is higher in men and postmenopausal women because estrogen is uricosuric and its concentration in pregnancy fall initially due to high estrogen, expanded plasma volume and increased glomerular filtration rate.

Endothelial cells which produce nitric oxide production reduced by uric acid,hence migratory and invasive phenotype of trophoblast is modified.

In preeclampsia patients since uric acid is elevated prior to10th week gestation so indirectly contributes to inadequate trophoblast invasion and spiral arteriole remodelling.

Uric acid found to damage the placental vasculature by stimulating the production of mediators of inflammation and inhibit fetal growth.Since uric acid reduces nitric oxide production which is a potent vasodilator there will be altered endothelial function which contributes to pathogenesis of placenta.

The increasing concentration of circulating TNFalpha in preeclamptic patients positively correlated with serum uric concentrations.

Chronic hyperuriemia is associated with reduced release of endothelium progenitor cells which is reduced in preeclampsia.

To conclude uric acid is converted to urate crystal which acts on placenta and maternal vasculature.

## Placenta

- Inhibition of nitric oxide production
- Decreased invasion of trophoblasts and remodelling
- Endothelial cell dysfunction
- Smooth muscle proliferation
- Compromises placental perfusion
- Oxidative stress and inflammation

## Maternal Vasculature

- Smooth muscle cell proliferation
- Endothelial cell dysfunction
- Activates inflammation
- Oxidative stress
- Inhibition of endothelial nitric oxide production

## Management of Preeclampsia

Hypertension complicating pregnancy is managed according to severity, gestational age and associated preeclampsia.The main objective of treating preeclampsia is to prevent maternal and fetal morbidity and mortality.

## Management of Mild Preeclampsia

Mild preeclampsia can be managed on outpatient basis with the help of day care units.Effective monitoring of mother and fetus is essential.Patient should visit hospitalat leastonce weekly after the diagnosis of preeclampsia.

All parameters should be evaluated if they are normal patient can be managed on an outpatient basis.No role of diuretics in the management of preeclampsia except when preeclampsia associated with pulmonary edema.

The use of antihypertensive drugs in mild preeclampsia remains questionable.The main objective of treatment with anti-hypertensive is to reduce the risk of severe hypertension,eclampsia and cerebrovascular haemorrhage.

There is loss of cerebral auto-regulation and risk of cerebral haemorrhage once the mean arterial blood pressure reaches 150mmHg.

The first lines of drugs are

- Labetalol
- Nifedipine
- Alpha-MethylDopa

**Maternal Monitoring**

- Daily urine albumin
- Blood pressure daily
- Daily weight
- History of imminent symptoms
- Lab tests like platelet count, liver and renal function tests,serum uric acid twice weekly
- Coagulation profile

**Fetal Monitoring**

- Fetal kick count daily
- NST and amniotic fluid index twice weekly
- Ultrasound to assess gestational age and growth
- Umbilical Artery Doppler.

The only definitive treatment for preeclampsia is delivery.Patients with mild preeclampsia can be induced at 38 weeks of gestation.

Pregnancy should be terminated earlier if there is progression of mild to severe preeclampsiaor imminent eclampsia or eclampsia and for obstetric indications like IUGR.If pregnancy is terminated before 34 weeks corticosteroids are given for lung maturity and to prevent respiratory distress syndrome.

Labour can be induced vaginally if there are no obstetric indications for caesarean section.If the cervix is unfavourable induce with dinoprostone gel vaginally and artificial rupture of membranes, oxytocin acceleration if the cervix is favourable.During labour continuous blood pressure monitoring, CTG monitoringand active management of third stage of labour is followed.

## Severe Preeclampsia

### Criteria for severe preeclampsia

- Systolic blood pressure of >160mmHg or diastolic blood pressure of 110mmHg on atleast two occasions 6 hours apart
- 5g proteinuria or higher in a 24 hour urinary specimen
- Oliguria
- Pulmonary edema

- Visual disturbances
- Epigastric pain
- Thrombocytopenia
- Elevated liver enzymes
- Fetal growth restriction

Since there is deterioration of maternal or fetal condition the only definitive treatment is delivery.Severe preeclampsia>34 weeks is terminated if there is worsening of biochemical parameters.Less than 24 weeks also best managed by termination whereas onset of severe preeclampsia<34 weeks but greater than 28 weeks there is role of expectant management for the sake of the fetus.

**Management of severe preeclampsia**

- Admit to the labour ward.
- Complete maternal and fetal evaluation within 24 hours.
- Start anti-hypertensives if systolic BP>160 or diastolic BP >110 to prevent cerebral haemorrhage.
- Use prophylactic magnesium sulphate regimenis used to prevent or reduce complications and rate of seizures.
- Inject steroids tohelp speed the infant’s lung maturity.

- Terminate pregnancy immediately if there is deterioration of maternal or fetal condition or developing complications like eclampsia,pulmonary oedema, abruption placentae,disseminated intravascular coagulation (DIC),acute renal failure, HELLP syndrome,non-reassuring fetal status pregnancy is immediately terminated.

**Intrapartum Management**

- Close monitoring of blood pressure is necessary. IV labetolol can be used for high blood pressure.
- Rapid fall in blood pressure is detrimental to both mother and fetus, so close monitoring is needed.
- Continue to use magnesium sulphate to prevent convulsions.
- Avoid fluid overload as preeclamptic patients are prone for pulmonary oedema.
- Transfuse fresh frozen plasma or blood products if there is DIVC.
- Indicate caesarean section if there is worsening of maternal condition, non-reassuring fetal pattern, failed induction or other associated obstetric indications.

## Eclampsia

- Eclampsia is defined as onset of generalised tonic clonic seizures in a preeclamptic patient.
- It has a risk to both mother and fetus.
- Eclampsia can be classified as antepartum, intrapartum and postpartum.
- Tonic clonic seizures preceeded by premonitory stage in the form of facial and mouth twitching.
- Major complications are abruption placenta,neurological deficit,aspiration pneumonitis,pulmonary edema,cardiopulmonary arrest and acute renal failure.

## Management of Eclampsia

- First and Foremost is the effective resuscitation.
- Nurse in semiprone position and immediately protect the airway
- Give nasal oxygen and effective oral sucitioning to prevent aspiration pneumonitis.
- Convulsions are controlled by giving intravenous loading dose of magnesium sulphate followed by intramuscular maintenance dose of magnesium sulphate.Intravenous dose 4g iv dose of 20% magnesium sulphate over 5-10 minutes followed by 5g im dose of 50% magnesium sulphate should be given on both buttocks followed by maintenance dose of 5g im every 4 hours over 24 hours.Monitor for magnesium sulphate

toxicity and to continue maintenance dose after ensuring presence of patellar reflex,respiratory rate and urineoutput.Magnesium sulphate toxicity is treated with intravenous 1g of 10% solution of calcium gluconate.

- Antihypertensives should be initiated to control the blood pressure.
- Avoid fluid overload.Diuretics are indicated only in pulmonary edema.
- Blood sample should be sent for plateletcount, liver function test and renal function test.
- After stabilising the patient, pregnancy is terminated.
- Based on obstetric indications mode of delivery is planned.

## HELLP Syndrome

This is a severe form of preeclampsia.

## Diagnostic Criteria

- Hemolysis
- Elevated liver enzymes
- Low platelet count
- Abnormal blood smear
- LDH >600IU/L
- AST >70IU/L
- Elevated indirect bilirubin

According to **MISISSIPPI** Classification

Class 1 [severe] -AST or ALT >70U/L

LDH> 600U/L

Platelets <50-100 $*10^{9}_{U/L}$

Class 2 [moderate]- AST or ALT >70U/L

LDH >600U/L

Platelets >50-100 $*10^{9}_{U/L}$

Class 3 [mild] - AST or ALT >40U/L

LDH >600U/L

Platelets 100-150 $*10^{9}_{U/L}$

## Symptoms

- Right upper quadrant or epigastric pain
- Nausea,vomiting
- Headache
- Visual changes
- Jaundice

Figure 6 indicates abdominal CT Showing a subcapsular haematoma in a woman with HELLP syndrome

## Complications

- Placental abruption
- DIC
- Acute renal failure
- Severe ascites
- Cerebral edema
- Pulmonary edema
- Wound hematoma
- Subcapsular liver hematoma
- Liver rupture

## Management of HELLP Syndrome

- Deliver rather than expectant management for pregnancies more than 34weeks
- For pregnancies less than 34 weeks deliver after a course of steroids.Steroids enhance the fetal lung maturity and improve the maternal platelet count.
- Other tried modalities in HELLP syndrome are antithrombotics,dialysis, plasma exchange with FFP and plasmapheresis.

## Preventive Measures of Preeclampsia

- No role of sodium restriction in the prevention of preeclampsia and salt restriction is not recommended.
- Antioxidants also not recommended.
- No role of diuretics in the prevention.
- According to some studies supplementation of low dose aspirin found to reduce the incidence of IUGR and preterm labour,19% reduction in risk of preeclampsia, 16%reduction in risk of fetal or neonatal deaths.
- Low calcium intake increases blood pressure by stimulating release of parathyroid hormone which increases intracellular calcium in vascular smooth muscle and vasoconstriction and extracellular ionized calcium is necessary for the production of nitric oxide and regulation of vascular tone,hence calcium supplementation found to reduce the risk of preeclampsia in high risk population and in women with low intake of dietary calcium.
- No randomized trials for heparin or low molecular weight heparin,hence not recommended.

Various studies have shown that serum uric acid plays an important role in the pathogenesis of preeclampsia and serum uric is elevated in preeclampsia patients and its levels correlate with severity of the disease and associated with poor perinatal outcome

According to recent studies estimation of serum uric acid in the first trimester can be used as a predictor of preeclampsia.

1] Gianni Bellomo and Sandra Venanzi et al [2011] studied the prognostic significance of serum uric acid in women with gestational hypertension.

Their studies shown that serum uric acid is a reliable predictor of preeclampsia

They studied 206 primiparasreferred for recent onset of hypertension with asingleton pregnancy.

Receiver operating curve analysis showed that serum uric at a 309umol/l predicted the development of preeclampsia with 87.7% sensitivity and93.3% specificity.

In conclusion women with suspected hypertension in pregnancy serum uric acid >309μmol/L accurately predicted the development of preeclampsia.

2]Jeltsfe. S.Chossen and Hanna De Rayter studied the accuracy of determining serum uric acid before 25$^{th}$ gestational week in predicting preeclampsia.

3]Annabel.C at al studied the pathogenic role of uric acid in preeclampsia.He mentioned that preeclampsia which is characterised by widespread endothelial dysfunction andinflammation might be propagated by uric acid.

4] Karla Periera and Cristine Knoppka studied the association between serum uric acid and severity of preeclampsia.

They evaluated serum uric acid as a marker of severity of preeclampsia and found that concentration of serum uric acid in pregnant women with preeclampsia is associated with severity of the disease and it contributes to better monitoring of mother and new-born.

5] Robert W. Power at al did a study on uric acid concentrations in early pregnancy among preeclamptic women with gestational hyperuricemia at delivery. He concluded his study by saying that maternal serum uric acid concentrations increased significantly from early pregnancy.

Uric acid increase more rapidly across pregnancy in women who develop HPU preeclampsia and HU pregnant women after 25 weeks of gestation compared with control pregnant women.

6]Bain Bridge[2008] at al in his study described the pathogenic role of uric acid in preeclampsia.

7]Robert JM at al studied that maternal xanthine oxidase as a source of free radical and uric acid generation in preeclampsia.He found that increased xanthine oxidase in the skin of preeclamptic women.

8] Richard J. Johnson andMehmet Kanbay at al studied that estimation of serum uric acid is a clinically useful marker to distinguish preeclampsia from gestational hypertension.

In his studies he stated that elevated uric acid has 8-9 fold risk for preeclampsia, 1.6-1.7 fold increased risk for SGA and uric acid of 5.2mg/dl has excellent sensitivity and specificity and likelihood ratio for diagnosis and prognosis.

9]Disha Sahijwani andAjeshDesal at al in his studies showed that serum uric acid as a prognostic marker of pregnancy induced hypertension.

Retrospective study was done on 80 women of pregnancy induced hypertension including both gestational hypertension and preeclampsia from January 2011- march 2012. Results states that serum uric acid more than 6mg/dl is associated with maternal complications especially eclampsia and low birthweight.

10]S.K.Laughon at al, J.Catov at al [2011] studied on first trimester serum uric acid and adverse pregnancy outcome.It is a prospective cohort study and the study among first trimester patients of about 1541.

Over all 111 women developed gestational hypertension,60 women developed preeclampsia and 1370 women remained normotensive.

Conclusion was higher uric acid in the first trimester associated with increasing risk of developing preeclampsia but not gestational hypertension.First trimester uric acid not related with preterm and small for gestational age.

# Aim of the Study

- To estimate whether an elevated uric acid level in the first trimester is associated with an increase in occurrence of preeclampsia.
- To predict the cut off value of uric acid for the outcome preeclampsia.

## Study design

Prospective cohort study

## Study Period

The study was carried out between November 2012 to November 2013.

## Inclusion Criteria

1. All pregnant women with single ton gestation
2. With LMP and USG confirmed pregnancy <13 weeks of gestation.

## Exclusion Criteria

1. Women with chronic hypertension
2. Women with H/o renal disorders
3. Women with H/o gout.
4. Women with H /o diabetes

## Sample Size

Sample size is calculated by using the following formula:

Sample size $n$ = **[DEFF*Np(1-p)]/ [($d^2/Z^2_{1-\alpha/2}$*(N-1)+p*(1-p)**

First trimester registered antenatal patients approximately is 1000

I have assumed elevation of serum uric among antenatal population is 20%,since study related is not available.

Population size [for finite population correction factor fpc][N]:1000

Hypothesized % frequency of outcome factor in the population[p]:20%+/-5

Confidence limits as % of 100[absolute +/-%[d]:5%

Design effect [for cluster surveys DEFF]:1

Hence sample size for my study is 197

# Methodology

A total of 197 antenatal patients who attended the antenatal clinic of the department of obstetrics and gynaecology,Government Kilpauk Medical College,were selected based on inclusion and exclusion criteria after obtaining their consent.

All selected women were subjected to a detailed history comprising of age,parity,body weight and height,LMP, medical history,drug history,previous obstetric history,previous H/o preeclampsia.

They were subjected to clinical examination and BP was recorded. Routine laboratory investigations were done.

On the next day fasting sample was taken from these patients for measuring serum uric acid level.Serum uric acid was measured by autoanalyzer.

- These patients were regularly followed up in the antenatal OP once in 4 weeks till 28 weeks then once in two weeks till their delivery and thorough clinical examination were done focusing their blood pressure and urine albumin.All details were entered.The patients who developed preeclampsia were grouped as preeclampsia cohort.
- The patients who were normotensive till delivery were grouped as normal cohort.

- The factors taken for analysis were age distribution, obstetric score, body mass index, history of preeclampsia in previous pregnancies and the serum uric acid.
- The predictive value of serum uric acid is determined by the ROC Curve.
- Logistic regression model was used to estimate the causal effect of each predisposing factor on outcome and to find out the most effective predictor.

Definitions used for the diagnosis of preeclampsia was according to International Society for the Study of Hypertension in Pregnancy [ISSHP],hypertension is defined as systolic blood pressure of >140 mmHg or diastolic blood pressure of >90mmHg.

A rise in the systolic blood pressure of 30mmHg or rise in the diastolic blood pressure of 15mmHg, atleast 4 hours apart associated with proteinuria of at least1+ or 1g/L on dipstick.

# Results of the Study

# Age Distribution

## Table - 1

| Age In Years | Preeclampsia Cohort | | Normal Cohort | |
|---|---|---|---|---|
| | No. of Cases | % | No. of Cases | % |
| **<24 Years** | 9 | 56.25 | 114 | 62.98 |
| **25-29 Years** | 5 | 31.25 | 50 | 27.63 |
| **>30 Years** | 2 | 12.50 | 17 | 9.39 |
| **Total** | **16** | **100** | **181** | **100** |

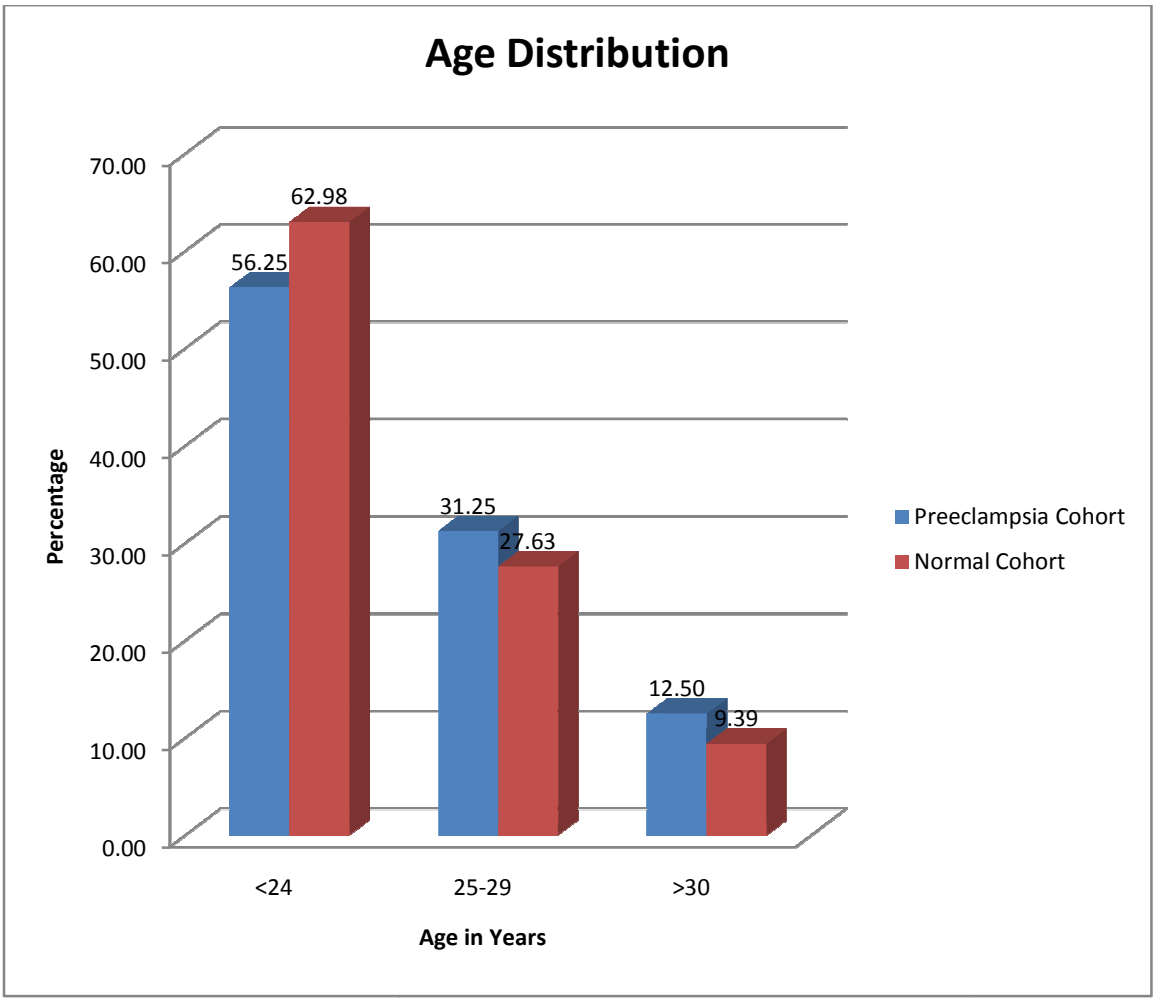
Pearson Chi-Square test value is 0.802

P value is 0.654

56.25% of the patients in preeclampsia cohort and 62.98% of the patients in the normal cohort were in the age group of <24 years.

31.25% of the patients in preeclampsia cohort and 27.63% of the patients in the normal cohort were in the age group of 25-29 years.

12.50% of the patients in preeclampsia cohort and 9.39% of the patients in the normal cohort were in the age group of >30 years.




## Inference

P value 0.654 is not significant. There is no statistical significant difference between preeclampsia & normal cohort with respect to age distribution.

# Comparison of Age Vs Serum Uric Acid Level

## Table - 2

| Group Statistics | | | | | |
|---|---|---|---|---|---|
| **Metrics** | | **No.** | **Mean** | **Std. Deviation** | **Std. Error Mean** |
| **Age** | **serum uric acid greater than cut off value (4.9 mg/dl)** | 31 | 23.74 | 3.109 | 0.558 |
| | **serum uric acid within cut off value (4.9 mg/dl)** | 166 | 23.83 | 3.586 | 0.278 |

The mean age of the patients with elevated serum uric acid levels is 23.74.

The mean age of the patients with normal serum uric acid levels is 23.83.

There is no statistical significant difference between age and uric acid levels.

# Comparison of Obstetric Score Vs Serum Uric Acid Level

## Table - 3

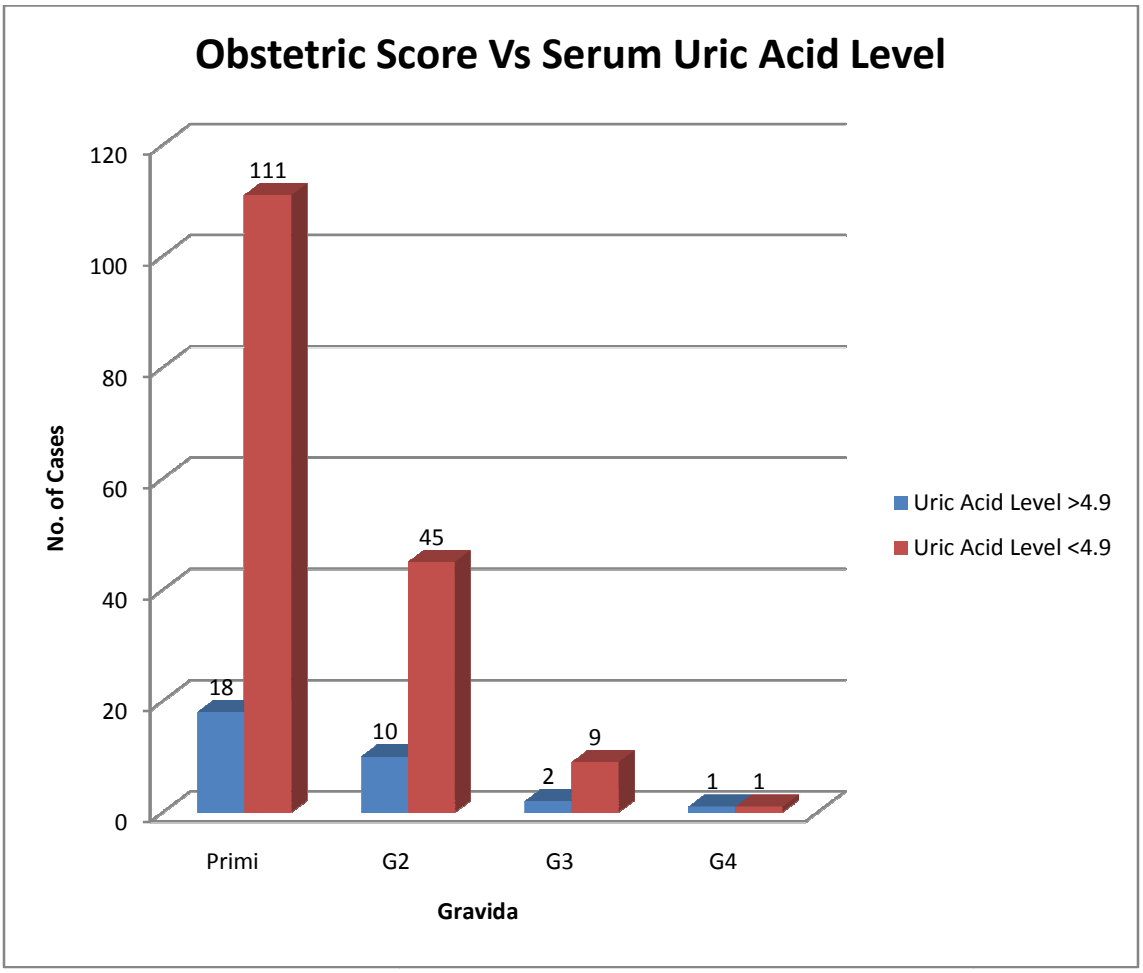
| Gravida and Serum Uric Acid value >4.9 mg/dl (cut off) | | | | |
|---|---|---|---|---|
| **Gravida** | **Metrics** | **Serum Uric Acid Level** | | |
| | | **Within cut off value (4.9 mg/dl)** | **Greater than cut off value (4.9 mg/dl)** | **Total** |
| **1** | **Count** | 111 | 18 | 129 |
| | **% within & greater than serum uric acid cut off value (4.9 mg/dl)** | 66.87% | 58.06% | 65.48% |
| | **% of Total** | 56.35% | 9.14% | 65.48% |
| **2** | **Count** | 45 | 10 | 55 |
| | **% within & greater than serum uric acid cut off value (4.9 mg/dl)** | 27.11% | 32.26% | 27.92% |
| | **% of Total** | 22.84% | 5.08% | 27.92% |
| **3** | **Count** | 9 | 2 | 11 |
| | **% within & greater than serum uric acid cut off value (4.9 mg/dl)** | 5.42% | 6.45% | 5.58% |
| | **% of Total** | 4.57% | 1.02% | 5.58% |
| **4** | **Count** | 1 | 1 | 2 |
| | **% within & greater than serum uric acid cut off value (4.9 mg/dl)** | 0.60% | 3.23% | 1.02% |
| | **% of Total** | 0.51% | 0.51% | 1.02% |

| | | | | |
|---|---|---|---|---|
| | **Count** | **166** | **31** | **197** |
| | **% within & greater than serum uric acid cut off value (4.9 mg/dl)** | **100.00%** | **100.00%** | **100.00%** |
| **Total** | **% of Total** | **84.26%** | **15.74%** | **100.00%** |

| **S. No.** | **Parity** | **No. of Cases** | **% of Cases** | **Uric Acid Level >4.9** | **% of Cases** | **Uric Acid Level <4.9** | **% of Cases** |
|---|---|---|---|---|---|---|---|
| 1 | Primi | 129 | 65.48% | 18 | 9.14% | 111 | 56.35% |
| 2 | G2 | 55 | 27.92% | 10 | 5.08% | 45 | 22.84% |
| 3 | G3 | 11 | 5.58% | 2 | 1.02% | 9 | 4.57% |
| 4 | G4 | 2 | 1.02% | 1 | 0.51% | 1 | 0.51% |

Pearson Chi-Square test value is 2.378

P value is 0.498




## Inference

P value 0.498 is not significant. There is no statistical significant difference between serum uric acid levels with respect to obstetric score.

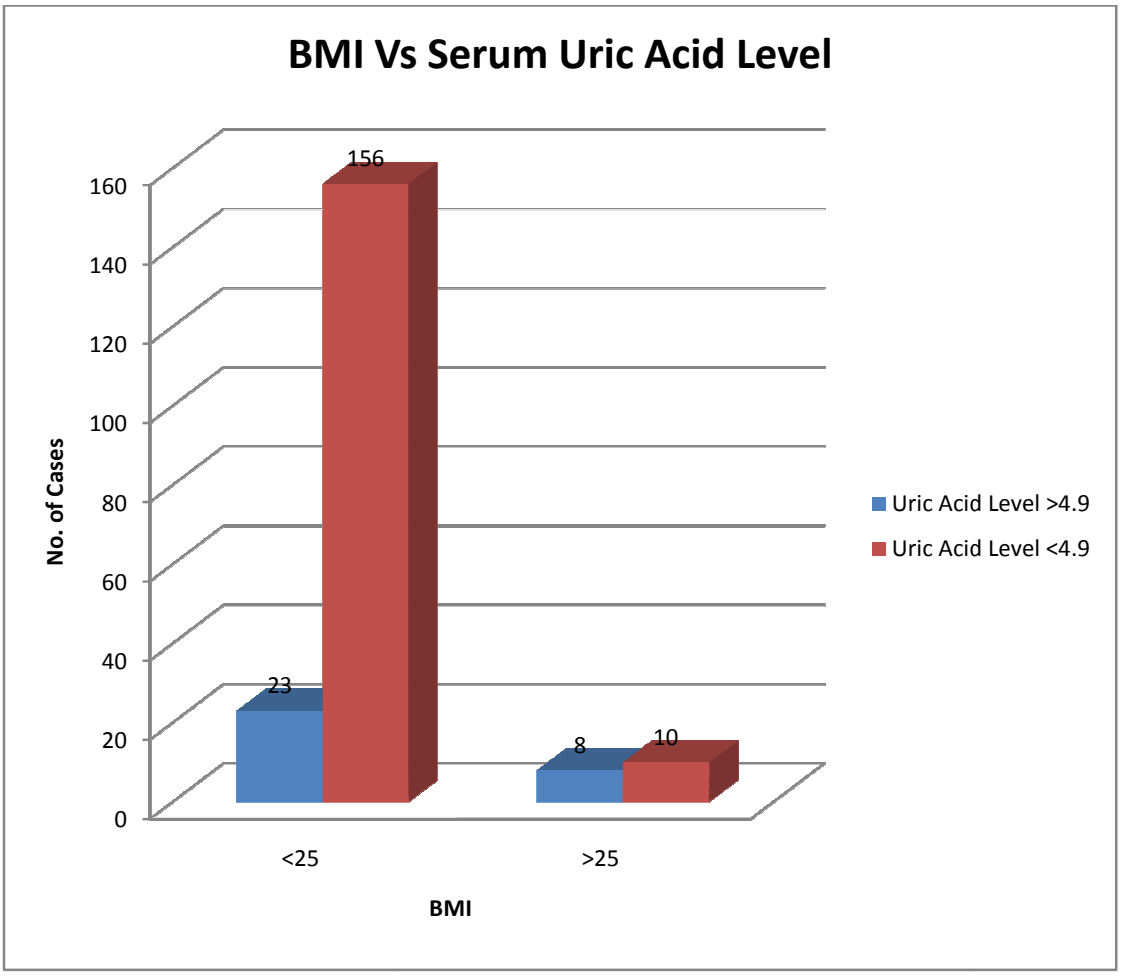
# Comparison of BMIVs Serum Uric Acid Level

## Table - 4

| Group Statistics | | | | | |
|---|---|---|---|---|---|
| **Metrics** | | **No.** | **Mean** | **Std. Deviation** | **Std. Error Mean** |
| **BMI** | **serum uric acid greater than cut off value (4.9 mg/dl)** | 31 | 22.27742 | 2.7518127 | 0.4942402 |
| | **serum uric acid within cut off value (4.9 mg/dl)** | 166 | 22.1006 | 2.1384644 | 0.165977 |

| S. No. | BMI | No. of Cases | % of Cases | Uric Acid Level >4.9 | % of Cases | Uric Acid Level <4.9 | % of Cases |
|---|---|---|---|---|---|---|---|
| 1 | <25 | 179 | 90.86 | 23 | 12.85 | 156 | 87.15 |
| 2 | >25 | 18 | 9.14 | 8 | 44.44 | 10 | 55.56 |

P value is 0.167




**Inference**

Mean BMI among patients with elevated uric acid levels is 22.27

Mean BMI among patients with normal uric acid levels is 22.10

P value 0.167 is not significant. There is no statistical significant association between BMI with respect to uric acid.

# Comparison of GAVs Serum Uric Acid Level

## Table - 5

| Group Statistics | | | | | |
|---|---|---|---|---|---|
| **Metrics** | | **No.** | **Mean** | **Std. Deviation** | **Std. Error Mean** |
| **GA at sampling** | **serum uric acid greater than cut off value (4.9 mg/dl)** | 31 | 11.52 | 0.508 | 0.091 |
| | **serum uric acid within cut off value (4.9 mg/dl)** | 166 | 11.54 | 0.547 | 0.042 |

P value is 0.494

**Inference**

Mean GA among patients with elevated uric acid levels is 11.52

Mean GA among patients with normal uric acid levels is 11.54

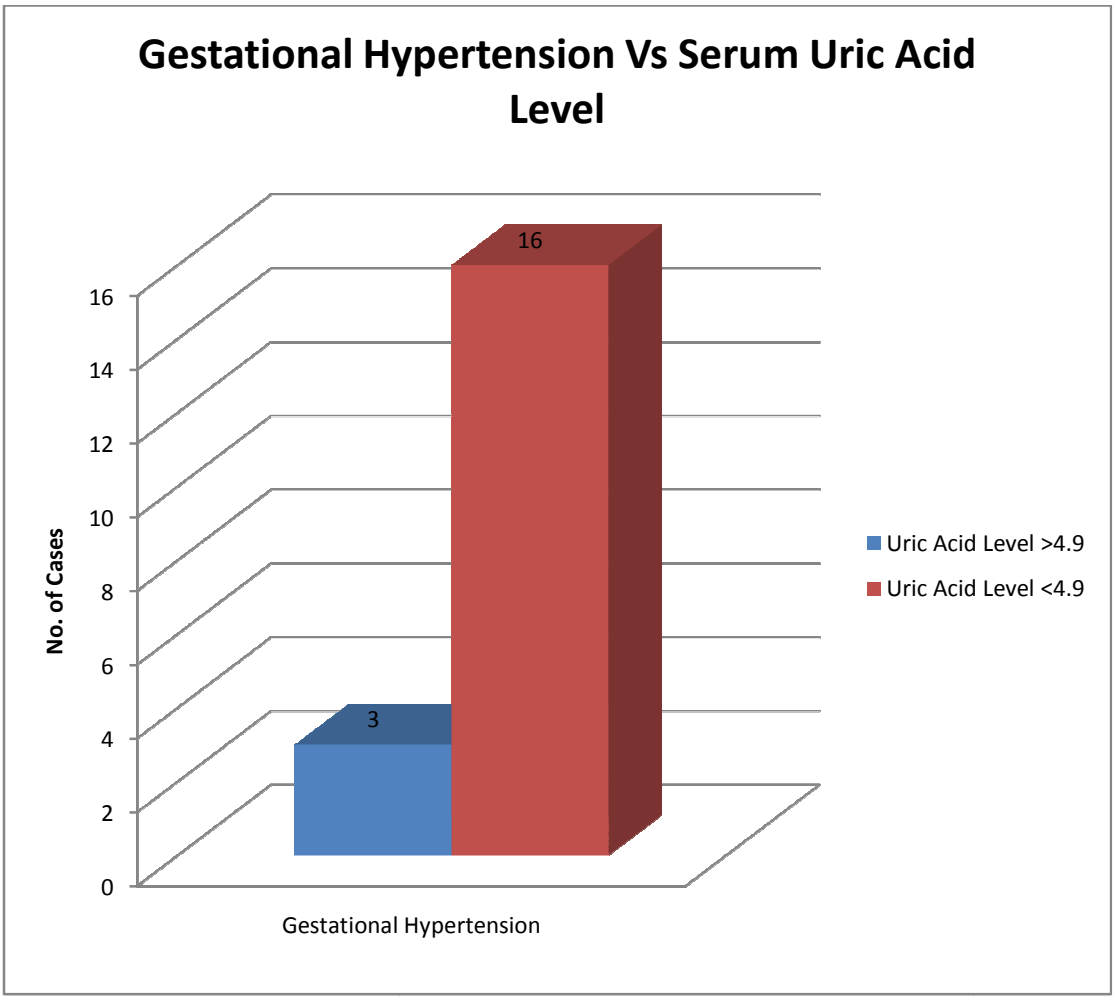
P value 0.494 is not significant. There is no statistical significant association between GA with respect to uric acid.

# Correlation between Gestational Hypertension and Serum Uric Acid Level

## Table -6

| Gestation Hypertension and Serum Uric Acid value >4.9 mg/dl (cut off) | | | | |
|---|---|---|---|---|
| **Crosstab** | | | | |
| **Condition** | **Metrics** | **Serum Uric Acid Level** | | **Total** |
| | | **Within cut off value (4.9 mg/dl)** | **Greater than cut off value (4.9 mg/dl)** | |
| **Gestation Hypertension = No** | Count | 150 | 28 | 178 |
| | % within & greater than serum uric acid cut off value (4.9 mg/dl) | 90.36% | 90.32% | 90.36% |
| | % of Total | 76.14% | 14.21% | 90.36% |
| **Gestation Hypertension = Yes** | Count | 16 | 3 | 19 |
| | % within & greater than serum uric acid cut off value (4.9 mg/dl) | 9.64% | 9.68% | 9.64% |
| | % of Total | 8.12% | 1.52% | 9.64% |
| **Total** | **Count** | **166** | **31** | **197** |
| | **% within & greater than serum uric acid cut off value (4.9 mg/dl)** | **100.00%** | **100.00%** | **100.00%** |
| | **% of Total** | **84.26%** | **15.74%** | **100.00%** |

| **S. No.** | **Total No. of Cases who developed Gestational Hypertension** | **% of Total Cases** | **Uric Acid Level >4.9** | **% of Cases** | **Uric Acid Level <4.9** | **% of Cases** |
|---|---|---|---|---|---|---|
| 1 | 19 | 9.64 | 3 | 1.52 | 16 | 8.12 |




**Inference**

The mean serum uric acid level among patients with gestational hypertension in the first trimester is not high.

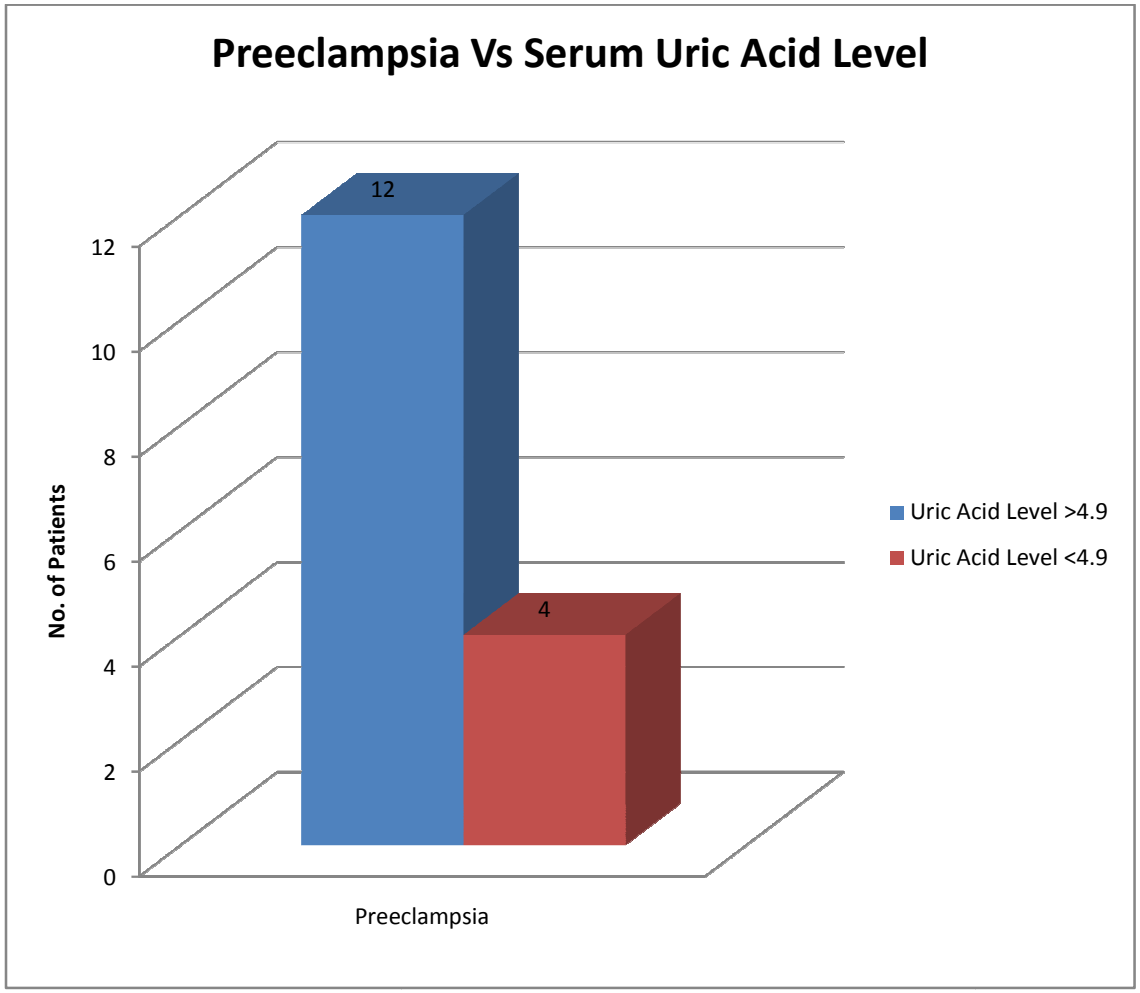
P value 0.995 is not significant.Hyperuricemia in the first trimester is not significantly associated with gestational hypertension.

# Correlation between Preeclampsia and Serum Uric AcidLevel

## Table - 7

| **Preeclampsia and Serum Uric Acid value >4.9 mg/dl (cut off)** | | | | |
|---|---|---|---|---|
| **Crosstab** | | | | |
| **Condition** | **Metrics** | **Serum Uric Acid Level** | | **Total** |
| | | **Within cut off value (4.9 mg/dl)** | **Greater than cut off value (4.9 mg/dl)** | |
| **Preeclampsia = No** | Count | 162 | 19 | 181 |
| | % within & greater than serum uric acid cut off value (4.9 mg/dl) | 97.59% | 61% | 97.46% |
| | % of Total | 82.23% | 9.6% | 97.46% |
| **Preeclampsia = Yes** | Count | 4 | 12 | 16 |
| | % within & greater than serum uric acid cut off value (4.9 mg/dl) | 2.41% | 38.71% | 41% |
| | % of Total | 2.03% | 6.09% | 8.12% |
| **Total** | **Count** | **166** | **31** | **197** |
| | **% within & greater than serum uric acid cut off value (4.9 mg/dl)** | **100.00%** | **100.00%** | **100.00%** |
| | **% of Total** | **84.26%** | **15.74%** | **100.00%** |

| **S. No.** | **Total No. of Patients who developed Preeclampsia** | **% of Total Cases** | **Uric Acid Level >4.9** | **% of Cases** | **Uric Acid Level <4.9** | **% of Cases** |
|---|---|---|---|---|---|---|
| 1 | 16 | 8.12 | 12 | 6.09 | 4 | 2.03 |




**Inference**

Prevalence of the preeclampsia from my study is 16 patients - 8%

Among those 12 (6%) patients with hyperuricemia in the first trimester developed preeclampsia.

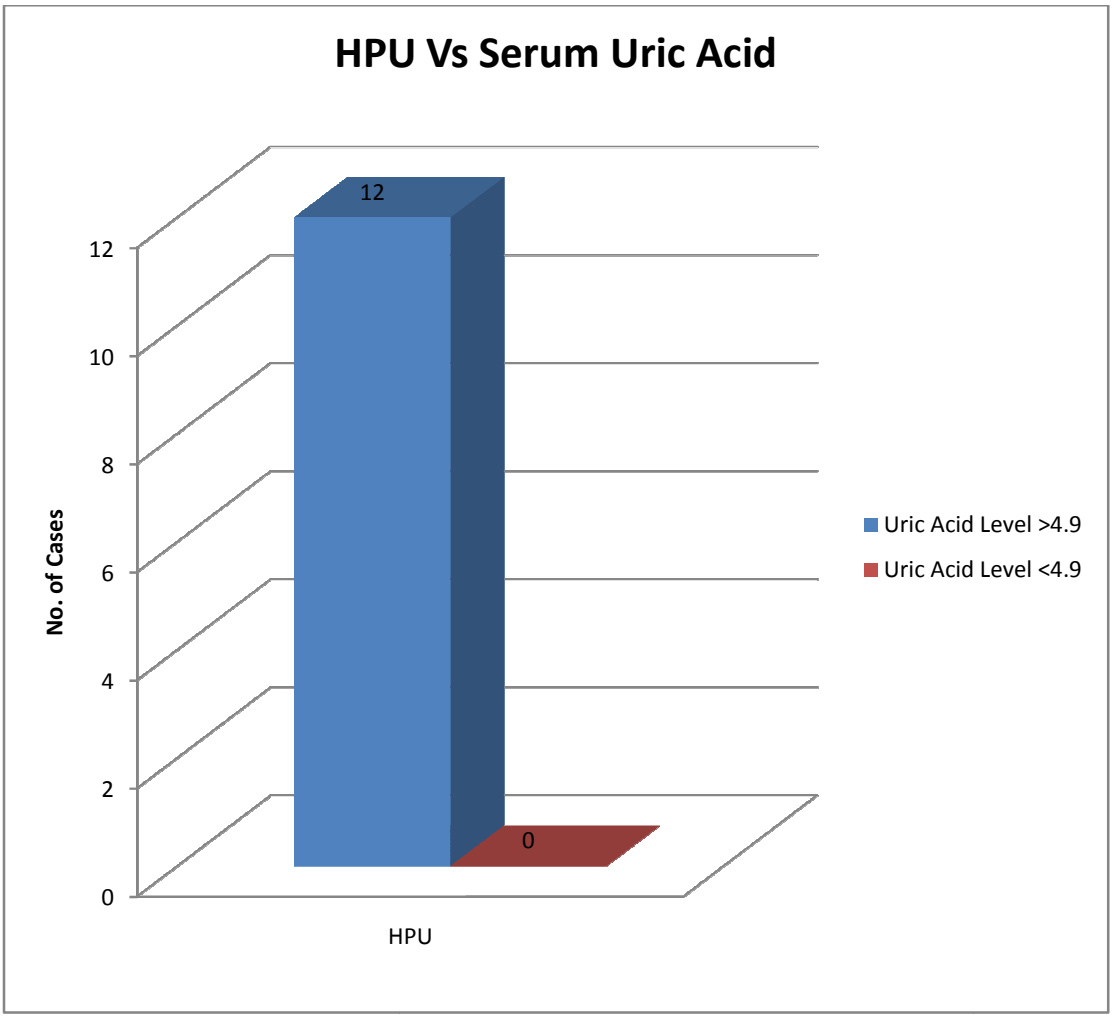
P value 0.0000001 is strongly significant.Hyperuricemia in the first trimester is significantly associated with preeclampsia.

# Correlation between HPU and Serum Uric Acid Level

## Table - 8

| HPU and Serum Uric Acid value >4.9 mg/dl (cut off) | | | | |
|---|---|---|---|---|
| **Crosstab** | | | | |
| **Condition** | **Metrics** | **Serum Uric Acid Level** | | **Total** |
| | | **Within cut off value (4.9 mg/dl)** | **Greater than cut off value (4.9 mg/dl)** | |
| **HPU = No** | Count | 166 | 19 | 185 |
| | % within & greater than serum uric acid cut off value (4.9 mg/dl) | 100.00% | 61.29% | 93.91% |
| | % of Total | 84.26% | 9.64% | 93.91% |
| **HPU = Yes** | Count | 0 | 12 | 12 |
| | % within & greater than serum uric acid cut off value (4.9 mg/dl) | 0.00% | 38.71% | 6.09% |
| | % of Total | 0.00% | 6.09% | 6.09% |
| **Total** | **Count** | **166** | **31** | **197** |
| | **% within & greater than serum uric acid cut off value (4.9 mg/dl)** | **100.00%** | **100.00%** | **100.00%** |
| | **% of Total** | **84.26%** | **15.74%** | **100.00%** |

| S. No. | Total No. of Patients who developed HPU | % of Total Cases | Uric Acid Level >4.9 | % of Cases | Uric Acid Level <4.9 | % of Cases |
|---|---|---|---|---|---|---|
| 1 | 12 | 6.09 | 12 | 6.09 | 0 | 0.00 |




**Inference**

Prevalence of the HPU from my study is 12 patients - 6%

Among those 12 (6%) patients with hyperuricemia in the first trimester developed HPU.

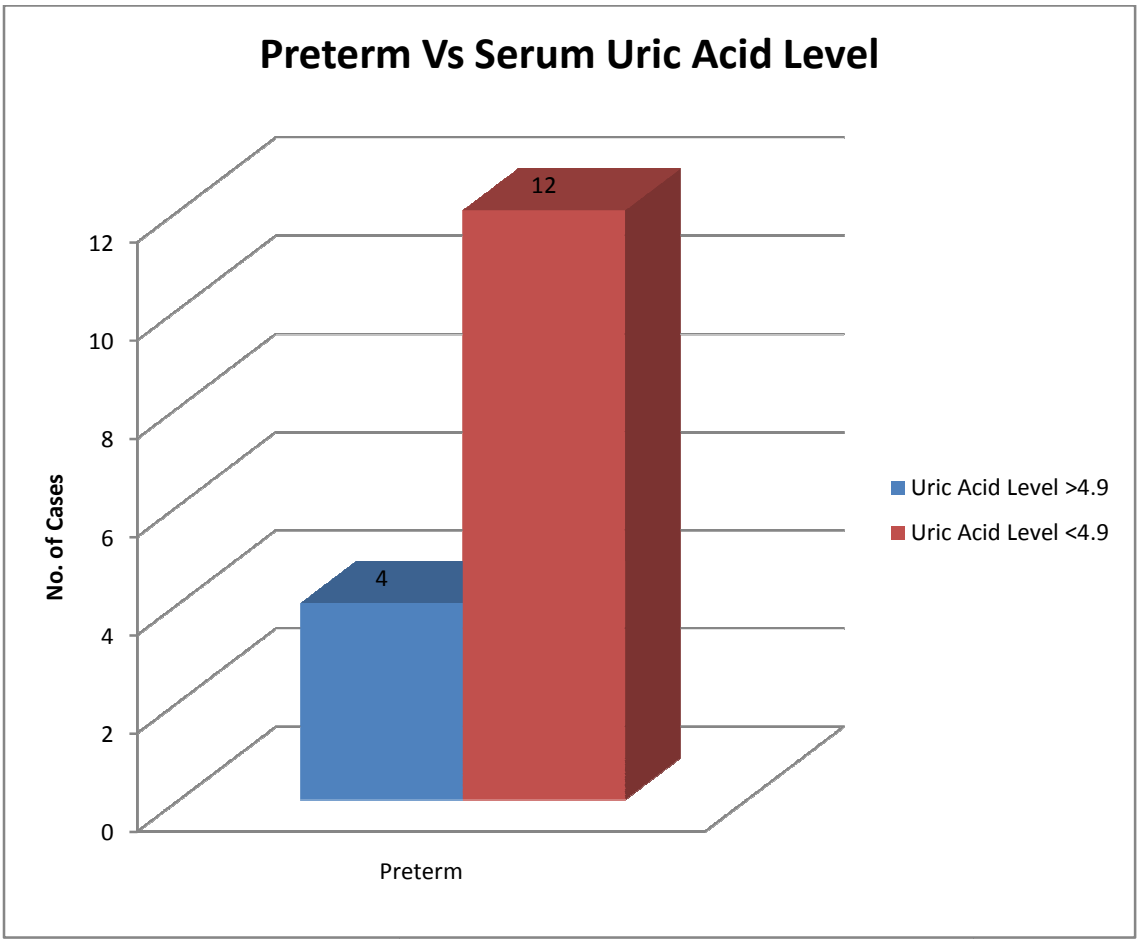
P value 0.000 is strongly significant. Hyperuricemia in the first trimester is significantly associated with HPU.

# Correlation betweenPreterm and Serum Uric Acid Level

## Table -9

| Preterm and Serum Uric Acid value >4.9 mg/dl (cut off) | | | | |
|---|---|---|---|---|
| **Crosstab** | | | | |
| **Condition** | **Metrics** | **Serum Uric Acid Level** | | **Total** |
| | | **Within cut off value (4.9 mg/dl)** | **Greater than cut off value (4.9 mg/dl)** | |
| **Preterm = No** | Count | 154 | 27 | 181 |
| | % within & greater than serum uric acid cut off value (4.9 mg/dl) | 92.77% | 87.10% | 91.88% |
| | % of Total | 78.17% | 13.71% | 91.88% |
| **Preterm = Yes** | Count | 12 | 4 | 16 |
| | % within & greater than serum uric acid cut off value (4.9 mg/dl) | 7.23% | 12.90% | 8.12% |
| | % of Total | 6.09% | 2.03% | 8.12% |
| **Total** | **Count** | **166** | **31** | **197** |
| | **% within & greater than serum uric acid cut off value (4.9 mg/dl)** | **100.00%** | **100.00%** | **100.00%** |
| | **% of Total** | **84.26%** | **15.74%** | **100.00%** |

| S. No. | Total No. of Patients who delivered Preterm | % of Total Cases | Uric Acid Level >4.9 | % of Cases | Uric Acid Level <4.9 | % of Cases |
|---|---|---|---|---|---|---|
| 1 | 16 | 8.12 | 4 | 2.03 | 12 | 6.09 |




## Inference

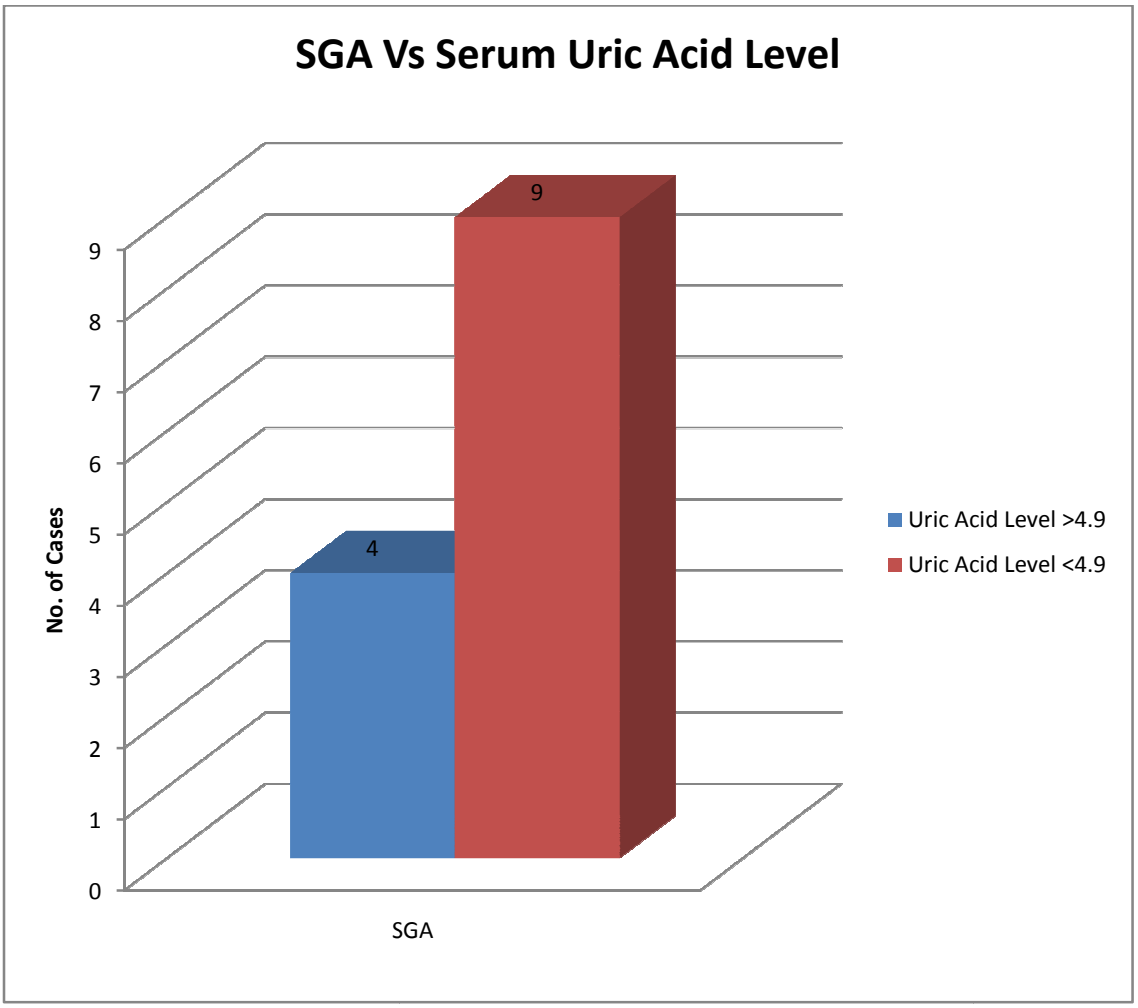
P value 0.288 is not significant. There is no statistical significant association between hyperuricemia in the first trimester and preterm.

# Correlation between SGA and Serum Uric Acid Level

## Table - 10

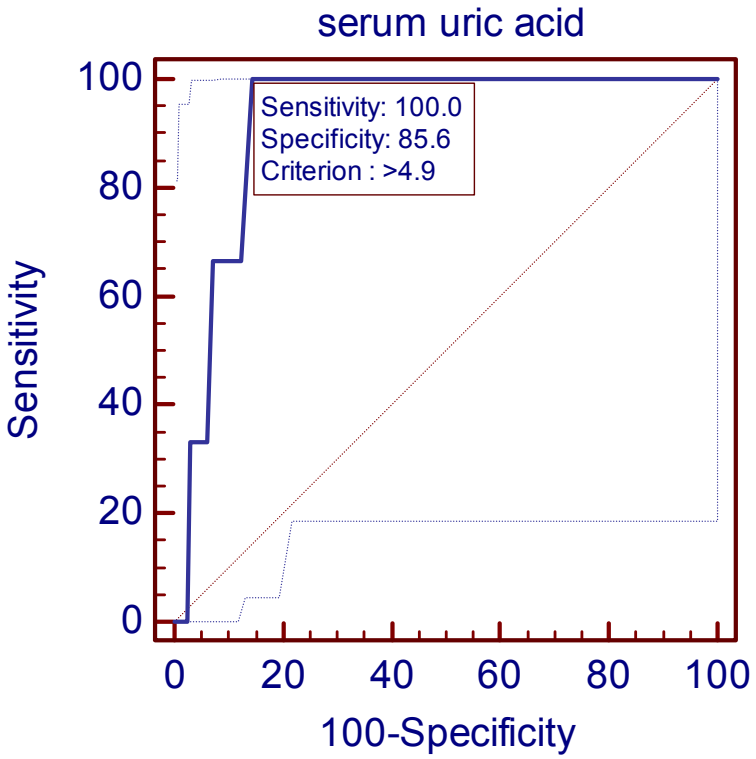
| SGA and Serum Uric Acid value >4.9 mg/dl (cut off) | | | | |
|---|---|---|---|---|
| **Crosstab** | | | | |
| **Condition** | **Metrics** | **Serum Uric Acid Level** | | **Total** |
| | | **Within cut off value (4.9 mg/dl)** | **Greater than cut off value (4.9 mg/dl)** | |
| **SGA = No** | Count | 157 | 27 | 184 |
| | % within & greater than serum uric acid cut off value (4.9 mg/dl) | 94.58% | 87.10% | 93.40% |
| | % of Total | 79.70% | 13.71% | 93.40% |
| **SGA = Yes** | Count | 9 | 4 | 13 |
| | % within & greater than serum uric acid cut off value (4.9 mg/dl) | 5.42% | 12.90% | 6.60% |
| | % of Total | 4.57% | 2.03% | 6.60% |
| **Total** | **Count** | **166** | **31** | **197** |
| | **% within & greater than serum uric acid cut off value (4.9 mg/dl)** | **100.00%** | **100.00%** | **100.00%** |
| | **% of Total** | **84.26%** | **15.74%** | **100.00%** |

| S. No. | Total No. of SGA Cases | % of Total Cases | Uric Acid Level >4.9 | % of Cases | Uric Acid Level <4.9 | % of Cases |
|---|---|---|---|---|---|---|
| 1 | 13 | 6.60 | 4 | 2.03 | 9 | 4.57 |




## Inference

P value 0.124 is not significant. There is no statistical significant association between hyperuricemia in the first trimester and SGA.




ROC curve

| | |
|---|---|
| **Variable** | serum_uric_acid |
| | serum uric acid |
| **Classification variable** | HT_Hyperurecemia |
| | HT +Hyperurecemia |

| | | |
|---|---|---|
| **Sample size** | | 197 |
| **Positive group** | **HT+Hyperurecemia = 1** | 3 |
| **Negative group** | **HT+Hyperurecemia = 0** | 194 |

| | |
|---|---|
| **Disease prevalence (%)** | Unknown |

The receptor operating curve is used for clinical prediction rules.

The accuracy of the curve is determined from the area under the curve.

If the area under the curve is 0.9 -1then the accuracy is excellent.

If the area under the curve is 0.8-0.9 the accuracy is good.

Testing serum uric acid as a predictor of preeclampsia

Area under the curve for uric acid is 0.92.

Sensitivity:100%

Specificity: 85.5%

Criterion: 4.9 mg

**Area under the ROC curve (AUC)**

| | |
|---|---|
| **Area under the ROC curve (AUC)** | 0.92354 |
| **Standard Error**[a] | 0.0345 |
| **95% Confidence interval**[b] | 0.877143 to 0.956516 |
| **Z Statistics** | 12.268 |
| **Significance level P (Area=0.5)** | <0.0001 |

[a]DeLong et al., 1988

[b] Binomial exact

**Youden index**

| | |
|---|---|
| Youden index J | 0.8557 |
| Associated criterion | >4.9 |

**Criterion values and coordinates of the ROC curve** [Hide]

| Criterion | Sensitivity | 95% CI | Specificity | 95% CI | +LR | -LR |
|---|---|---|---|---|---|---|
| ≥2 | 100.00 | 29.2 - 100.0 | 0.00 | 0.0 - 1.9 | 1.00 | 0.00 |
| >2 | 100.00 | 29.2 - 100.0 | 1.55 | 0.3 - 4.5 | 1.02 | 0.00 |
| >2.1 | 100.00 | 29.2 - 100.0 | 2.58 | 0.8 - 5.9 | 1.03 | 0.00 |
| >2.2 | 100.00 | 29.2 - 100.0 | 4.12 | 1.8 - 8.0 | 1.04 | 0.00 |
| >2.3 | 100.00 | 29.2 - 100.0 | 5.15 | 2.5 - 9.3 | 1.05 | 0.00 |
| >2.4 | 100.00 | 29.2 - 100.0 | 9.28 | 5.6 - 14.3 | 1.10 | 0.00 |
| >2.5 | 100.00 | 29.2 - 100.0 | 12.89 | 8.5 - 18.4 | 1.15 | 0.00 |
| >2.6 | 100.00 | 29.2 - 100.0 | 13.40 | 8.9 - 19.0 | 1.15 | 0.00 |
| >2.7 | 100.00 | 29.2 - 100.0 | 15.98 | 11.1 - 21.9 | 1.19 | 0.00 |
| >2.8 | 100.00 | 29.2 - 100.0 | 21.65 | 16.1 - 28.1 | 1.28 | 0.00 |
| >2.9 | 100.00 | 29.2 - 100.0 | 27.32 | 21.2 - 34.2 | 1.38 | 0.00 |
| >3 | 100.00 | 29.2 - 100.0 | 32.99 | 26.4 - 40.1 | 1.49 | 0.00 |
| >3.1 | 100.00 | 29.2 - 100.0 | 35.57 | 28.8 - 42.7 | 1.55 | 0.00 |
| >3.2 | 100.00 | 29.2 - 100.0 | 44.85 | 37.7 - 52.1 | 1.81 | 0.00 |
| >3.22 | 100.00 | 29.2 - 100.0 | 45.36 | 38.2 - 52.6 | 1.83 | 0.00 |
| >3.3 | 100.00 | 29.2 - 100.0 | 46.39 | 39.2 - 53.7 | 1.87 | 0.00 |
| >3.4 | 100.00 | 29.2 - 100.0 | 51.03 | 43.8 - 58.3 | 2.04 | 0.00 |
| >3.5 | 100.00 | 29.2 - 100.0 | 57.22 | 49.9 - 64.3 | 2.34 | 0.00 |
| >3.6 | 100.00 | 29.2 - 100.0 | 58.25 | 51.0 - 65.3 | 2.40 | 0.00 |
| >3.7 | 100.00 | 29.2 - 100.0 | 63.92 | 56.7 - 70.7 | 2.77 | 0.00 |
| >3.8 | 100.00 | 29.2 - 100.0 | 68.04 | 61.0 - 74.5 | 3.13 | 0.00 |
| >3.9 | 100.00 | 29.2 - 100.0 | 68.56 | 61.5 - 75.0 | 3.18 | 0.00 |
| >4 | 100.00 | 29.2 - 100.0 | 74.23 | 67.5 - 80.2 | 3.88 | 0.00 |
| >4.1 | 100.00 | 29.2 - 100.0 | 77.32 | 70.8 - 83.0 | 4.41 | 0.00 |
| >4.2 | 100.00 | 29.2 - 100.0 | 77.84 | 71.3 - 83.5 | 4.51 | 0.00 |
| >4.3 | 100.00 | 29.2 - 100.0 | 80.93 | 74.7 - 86.2 | 5.24 | 0.00 |
| >4.4 | 100.00 | 29.2 - 100.0 | 81.44 | 75.2 - 86.7 | 5.39 | 0.00 |
| >4.5 | 100.00 | 29.2 - 100.0 | 81.96 | 75.8 - 87.1 | 5.54 | 0.00 |
| >4.6 | 100.00 | 29.2 - 100.0 | 82.47 | 76.4 - 87.5 | 5.71 | 0.00 |
| >4.9 | 100.00 | 29.2 - 100.0 | 85.57 | 79.8 - 90.2 | 6.93 | 0.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| >5 | 66.67 | 9.4 - 99.2 | 87.63 | 82.2 - 91.9 | 5.39 | 0.38 |
| >5.1 | 66.67 | 9.4 - 99.2 | 88.66 | 83.3 - 92.8 | 5.88 | 0.38 |
| >5.2 | 66.67 | 9.4 - 99.2 | 89.18 | 83.9 - 93.2 | 6.16 | 0.37 |
| >5.4 | 66.67 | 9.4 - 99.2 | 91.24 | 86.3 - 94.8 | 7.61 | 0.37 |
| >5.5 | 66.67 | 9.4 - 99.2 | 92.78 | 88.2 - 96.0 | 9.24 | 0.36 |
| >5.6 | 33.33 | 0.8 - 90.6 | 93.81 | 89.4 - 96.8 | 5.39 | 0.71 |
| >5.8 | 33.33 | 0.8 - 90.6 | 94.33 | 90.1 - 97.1 | 5.88 | 0.71 |
| >5.9 | 33.33 | 0.8 - 90.6 | 94.85 | 90.7 - 97.5 | 6.47 | 0.70 |
| >6 | 33.33 | 0.8 - 90.6 | 95.88 | 92.0 - 98.2 | 8.08 | 0.70 |
| >6.3 | 33.33 | 0.8 - 90.6 | 96.39 | 92.7 - 98.5 | 9.24 | 0.69 |
| >6.7 | 33.33 | 0.8 - 90.6 | 96.91 | 93.4 - 98.9 | 10.78 | 0.69 |
| >6.8 | 0.00 | 0.0 - 70.8 | 97.42 | 94.1 - 99.2 | 0.00 | 1.03 |
| >6.9 | 0.00 | 0.0 - 70.8 | 97.94 | 94.8 - 99.4 | 0.00 | 1.02 |
| >7 | 0.00 | 0.0 - 70.8 | 98.45 | 95.5 - 99.7 | 0.00 | 1.02 |
| >7.2 | 0.00 | 0.0 - 70.8 | 99.48 | 97.2 - 100.0 | 0.00 | 1.01 |
| >7.5 | 0.00 | 0.0 - 70.8 | 100.00 | 98.1 - 100.0 | 0.00 | 1.00 |

# Summary

- There is no statistical significance between BMI and serum uric acid level.The Mean BMI among patients with elevated serum uric acid level was 22.27 whereas the Mean BMI among patients with normal serum uric acid level was 22.10.
- 66.87% of the patients in the normal cohort were primigravida,27.11% of the patients were second gravida, 5.42% of the patients were third gravida and 0.60% of the patients in the normal cohort were fourth gravida.
- 58.06% of the patients with serum uric acid level >4.9 mg/dl were primigravida.
- 32.26% of the patients with serum uric acid level >4.9 mg/dlwere second gravida.
- 6.45% of the patients with serum uric acid level>4.9 mg/dlwere third gravida and 3.23% were fourth gravida.
- The serum uric acid level was high in the patients who developed preeclampsia.
- Area under the curve was 0.92.
- Testing serum uric as a predictor sensitivity 100% and specificity was 85.5%.
- The mean cut off value of serum uric for the patients who developed preeclampsia is 4.9.

# Discussion

Our study included 197 first trimester pregnant women recruited from antenatal op department.

- Over all 19 women [9.64%] developed gestational hypertension,16 women[8%] developed preeclampsia and remaining 162 women[82.2%] were normotensive.
- Prevalence of gestational hypertension from my study was 9.64%.
- Prevalence of preeclampsia from my study was 8.12%.
- There were 16 births [8.12%]that were delivered preterm <37 weeks of gestation.
- The serum uric acid level among patients who delivered preterm was not high.
- There were 13 neonates that were small for gestational age SGA [6.60%]
- The mean serum uric level among patients who delivered small for gestational age was normal.
- Only 15.79% of the patients who developed gestational hypertension have elevated serum uric acid levels.
- Over all 16 [8.12%]women developed preeclampsia among them 12 women [75%]women has high serum uric acid levels and 4 women [25%] have normal serum uric acid levels.

- The mean age of patients among elevated serum uric acid level was 23.74 whereasthe mean age of patients with normal serum uric acid level was 23.83.
- No statistical significant difference between age and serum uric acid level.
- No statistical significant difference between BMI and serum uric acid level.

My study is similar to the study of S.K. Laughon and J.Catov on first trimester serum uric acid and adverse pregnancy outcome[2011]

| **S. No.** | **Parameter** | **My Study** | **S.K.Laughon and J.Catov** |
|---|---|---|---|
| 1. | Age and serum uric acid | No statistical significant difference | No statistical significant difference |
| 2. | BMI and uric acid | No statistical significant difference | No statistical significant difference |
| 3. | Gestational Hypertension and hyperuricemia | Not strongly associated. Only 15% | Only 20% associated with hyperuricemia |
| 4 | preeclampsia | Strongly associated 75% | Strongly associated 53.3% |
| 5. | Preterm | No linear association | No linear association |
| 6. | SGA | No linear association | No linear association |
| 7. | Uric acid status at delivery | Not known | Uric acid sample was taken at delivery. |

# Conclusion

After analysing and comparing the results between preeclampsia cohort and normal cohort it was concluded that:

- The serum uric acid level was high among preeclampsia patients in the first trimester.
- Thus there exists a positive correlation between elevated serum uric acid level in the first trimester and occurrence of preeclampsia.
- The mean cut off value of serum uric acid level for the prediction of preeclampsia in my study is 4.9
- There is no positive correlation between body mass index and serum uric acid level.
- There is no linear association between preterm & elevated serum uric acid level.Similarly there is no linear association between small for gestational age and uric acid level.
- Therefore serum uric acid level in the first trimester can be a good predictor for preeclampsia if we combine with other clinical and biochemical parameters to improve the prediction.
- Long term cohort studies are needed to investigate whether patients with hyperuricemia early in pregnancy are at risk for developing hypertensive diseases with more adverse outcomes during pregnancy and future risk of metabolic syndrome, cardiovascular disease,diabetes and hypertension.

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# Master Chart

| S. No | Name | Age | Parity | BMI | GA at sampling Previous H/o Preeclampsia Previous H/o Chronic Hypertension | BP |
|---|---|---|---|---|---|---|
| 1 | Kanchana | 24 | G4P1L1A2 | 24 | 11WKS | 110/70 |
| 2 | Devi | 24 | PRIMI | 22 | 12WKS | 120/70 |
| 3 | Bhavana | 30 | G3P1L1A1 | 22 | 12WKS | 110/70 |
| 4 | Thenmozhi | 20 | PRIMI | 20.5 | 11WKS | 100/70 |
| 5 | Rama | 21 | PRIMI | 20.5 | 10WKS | 90/60 |
| 6 | Revathy | 23 | PRIMI | 21 | 11WKS | 110/70 |
| 7 | Rasathy | 28 | primi | 23 | 12wks | 120/80 |
| 8 | Deepa | 24 | G2P1L1 | 24 | 12WKS | 100/70 |
| 9 | Sangeetha | 28 | PRIMI | 22 | 12WKS | 110/80 |
| 10 | Vijayalakshmi | 28 | PRIMI | 25 | 12WKS | 120/80 |
| 11 | Vijayalakshmi | 20 | PRIMI | 22 | 12WKS | 100/80 |
| 12 | Shajitha | 24 | PRIMI | 21.5 | 11WKS | 120/80 |
| 13 | Mala | 26 | G2P1L1 | 24 | 12WKS | 110/80 |
| 14 | Sudha | 22 | PRIMI | 22 | 12WKS | 100/70 |
| 15 | Kalaiselvi | 20 | PRIMI | 20 | 11WKS | 120/80 |
| 16 | Bhoomadevi | 22 | PRIMI | 21 | 12WKS | 100/70 |
| 17 | Mohana | 21 | PRIMI | 21.5 | 10WKS | 100/60 |
| 18 | Thenmozhi | 25 | PRIMI | 22 | 11WKS | 100/60 |
| 19 | Meenakshi | 24 | PRIMI | 23 | 12WKS | 100/70 |
| 20 | Vidhya | 31 | G3P1L1A1 | 24.5 | 12WKS | 110/70 |
| 21 | Lakshmi | 25 | PRIMI | 22 | 11WKS | 110/80 |
| 22 | Suguna | 20 | PRIMI | 21 | 11WKS | 120/80 |
| 23 | Anushya | 20 | PRIMI | 22 | 11WKS | 120/80 |
| 24 | Priya | 22 | PRIMI | 23 | 12WKS | 110/70 |
| 25 | Rajeshwari | 37 | G3P1L1A1 | 24 | 12WKS | 110/70 |
| 26 | Muthukumari | 22 | PRIMI | 22.5 | 11WKS | 100/70 |
| 27 | Suganya | 27 | G2P1L1 | 22 | 12WKS | 100/70 |
| 28 | Selvi | 22 | G2P1L1 | 21 | 11WKS | 100/70 |
| 29 | Renuka | 20 | PRIMI | 20.5 | 12WKS | 120/80 |
| 30 | Kiladha | 21 | PRIMI | 22.5 | 12WKS | 100/80 |
| 31 | Gomathy | 27 | G2P1L1 | 24 | 11WKS | 100/80 |
| 32 | Sumathy | 20 | PRIMI | 21 | 11WKS | 120/80 |
| 33 | Revthy | 27 | G2P1L1 | 22.5 | 11WKS | 120/80 |
| 34 | Sathya | 23 | PRIMI | 23.5 | 12WKS | 100/70 |
| 35 | Bhagya | 25 | PRIMI | 22 | 12WKS | 120/80 |
| 36 | Karpagam | 22 | PRIMI | 22 | 12WKS | 100/80 |
| 37 | Manju | 27 | G2P1L1 | 22.5 | 12WKS | `120/80 |
| 38 | Meenakshi | 20 | PRIMI | 21 | 11WKS | 100/80 |
| 39 | Naheshwari | 20 | PRIMI | 21.5 | 11WKS | 100/80 |
| 40 | Sundari | 22 | PRIMI | 21.5 | 11WKS | 120/80 |
| 41 | Benazir | 20 | PRIMI | 22 | 12WKS | 100/70 |
| 42 | Nadhiya | 21 | PRIMI | 22.5 | 12WKS | 120/80 |

| S. No | Name | Age | Previous H/o Preeclampsia | Previous H/o Chronic Hypertension | Previous H/o Gout | Serum Uric Acid |
|---|---|---|---|---|---|---|
| 1 | Kanchana | 24 | 0 | 0 | 0 | 3.1mg |
| 2 | Devi | 24 | 0 | 0 | 0 | 3.1mg |
| 3 | Bhavana | 30 | 0 | 0 | 0 | 2.9mg |
| 4 | Thenmozhi | 20 | 0 | 0 | 0 | 2.9mg |
| 5 | Rama | 21 | 0 | 0 | 0 | 2.9mg |
| 6 | Revathy | 23 | 0 | 0 | 0 | 2.9mg |
| 7 | Rasathy | 28 | 0 | 0 | 0 | 3.5mg |
| 8 | Deepa | 24 | 0 | 0 | 0 | 3.4mg |
| 9 | Sangeetha | 28 | 0 | 0 | 0 | 2.4mg |
| 10 | Vijayalakshmi | 28 | 0 | 0 | 0 | 2.9mg |
| 11 | Vijayalakshmi | 20 | 0 | 0 | 0 | 2.9mg |
| 12 | Shajitha | 24 | 0 | 0 | 0 | 5.6mg |
| 13 | Mala | 26 | 0 | 0 | 0 | 3.8mg |
| 14 | Sudha | 22 | 0 | 0 | 0 | 6.8mg |
| 15 | Kalaiselvi | 20 | 0 | 0 | 0 | 3.0mg |
| 16 | Bhoomadevi | 22 | 0 | 0 | 0 | 3.4mg |
| 17 | Mohana | 21 | 0 | 0 | 0 | 3.0mg |
| 18 | Thenmozhi | 25 | 0 | 0 | 0 | 3.5mg |
| 19 | Meenakshi | 24 | 0 | 0 | 0 | 3.7mg |
| 20 | Vidhya | 31 | 0 | 0 | 0 | 2.3mg |
| 21 | Lakshmi | 25 | 0 | 0 | 0 | 7.5mg |
| 22 | Suguna | 20 | 0 | 0 | 0 | 2.0mg |
| 23 | Anushya | 20 | 0 | 0 | 0 | 2.7mg |
| 24 | Priya | 22 | 0 | 0 | 0 | 4.1mg |
| 25 | Rajeshwari | 37 | 0 | 0 | 0 | 3.0mg |
| 26 | Muthukumari | 22 | 0 | 0 | 0 | 2.1mg |
| 27 | Suganya | 27 | 0 | 0 | 0 | 3.7mg |
| 28 | Selvi | 22 | 0 | 0 | 0 | 5.1mg |
| 29 | Renuka | 20 | 0 | 0 | 0 | 5.5mg |
| 30 | Kiladha | 21 | 0 | 0 | 0 | 3.3mg |
| 31 | Gomathy | 27 | 0 | 0 | 0 | 3.0mg |
| 32 | Sumathy | 20 | 0 | 0 | 0 | 3.2mg |
| 33 | Revthy | 27 | 0 | 0 | 0 | 4.0mg |
| 34 | Sathya | 23 | 0 | 0 | 0 | 3.9mg |
| 35 | Bhagya | 25 | 0 | 0 | 0 | 2.4mg |
| 36 | Karpagam | 22 | 0 | 0 | 0 | 6.0mg |
| 37 | Manju | 27 | 0 | 0 | 0 | 2.2mg |
| 38 | Meenakshi | 20 | 0 | 0 | 0 | 2.5mg |
| 39 | Naheshwari | 20 | 0 | 0 | 0 | 3.8mg |
| 40 | Sundari | 22 | 0 | 0 | 0 | 3.4mg |
| 41 | Benazir | 20 | 0 | 0 | 0 | 2.8mg |
| 42 | Nadhiya | 21 | 0 | 0 | 0 | 4.3mg |

| S. No | Name | Age | Roll Over Test | Urine Albumin | RFT | LFT | Gestation Hypertension | Preeclampsia |
|---|---|---|---|---|---|---|---|---|
| 1 | Kanchana | 24 | | nil | N | N | 0 | 0 |
| 2 | Devi | 24 | | nil | N | N | 0 | 0 |
| 3 | Bhavana | 30 | positive | nil | N | N | 1 | 0 |
| 4 | Thenmozhi | 20 | | nil | N | N | 0 | 0 |
| 5 | Rama | 21 | | nil | N | N | 0 | 0 |
| 6 | Revathy | 23 | | nil | N | N | 0 | 0 |
| 7 | Rasathy | 28 | | nil | N | N | 0 | 0 |
| 8 | Deepa | 24 | positive | 2+ | N | N | 0 | 1 |
| 9 | Sangeetha | 28 | positive | nil | N | N | 1 | 0 |
| 10 | Vijayalakshmi | 28 | | nil | NN | N | 0 | 0 |
| 11 | Vijayalakshmi | 20 | | nil | N | N | 0 | 0 |
| 12 | Shajitha | 24 | positive | nil | N | N | 1 | 0 |
| 13 | Mala | 26 | | nil | N | N | 0 | 0 |
| 14 | Sudha | 22 | positive | 3+ | N | N | 0 | 0 |
| 15 | Kalaiselvi | 20 | | nil | N | N | 0 | 0 |
| 16 | Bhoomadevi | 22 | positive | nil | N | N | 1 | 0 |
| 17 | Mohana | 21 | | nil | N | N | 0 | 0 |
| 18 | Thenmozhi | 25 | | nil | N | N | 0 | 0 |
| 19 | Meenakshi | 24 | | nil | N | N | 0 | 0 |
| 20 | Vidhya | 31 | | nil | N | N | 0 | 0 |
| 21 | Lakshmi | 25 | positive | 3+ | N | N | 0 | 1 |
| 22 | Suguna | 20 | | nil | N | N | 0 | 0 |
| 23 | Anushya | 20 | | nil | N | N | 0 | 0 |
| 24 | Priya | 22 | | nil | N | N | 0 | 0 |
| 25 | Rajeshwari | 37 | positive | 2+ | N | N | 0 | 1 |
| 26 | Muthukumari | 22 | | nil | N | N | 0 | 0 |
| 27 | Suganya | 27 | | nil | N | N | 0 | 0 |
| 28 | Selvi | 22 | | nil | N | N | 0 | 0 |
| 29 | Renuka | 20 | positive | 2+ | N | N | 0 | 0 |
| 30 | Kiladha | 21 | | nil | N | N | 0 | 0 |
| 31 | Gomathy | 27 | positive | 2+ | N | N | 0 | 1 |
| 32 | Sumathy | 20 | positive | nil | N | N | 1 | 0 |
| 33 | Revthy | 27 | | nil | N | N | 0 | 0 |
| 34 | Sathya | 23 | | nil | N | N | 0 | 0 |
| 35 | Bhagya | 25 | | nil | N | N | 0 | 0 |
| 36 | Karpagam | 22 | positive | 3+ | N | N | 0 | 0 |
| 37 | Manju | 27 | | nil | N | N | 0 | 0 |
| 38 | Meenakshi | 20 | | nil | N | N | 0 | 0 |
| 39 | Naheshwari | 20 | | nil | N | N | 0 | 0 |
| 40 | Sundari | 22 | | nil | N | N | 0 | 0 |
| 41 | Benazir | 20 | | nil | N | N | 0 | 0 |
| 42 | Nadhiya | 21 | | nil | N | N | 0 | 0 |

| S. No | Name | Age | HT+ Hyperurecemia | HPU | Preterm | SGA | GA at whichPreeclampsia is detected | GA at Delivery |
|---|---|---|---|---|---|---|---|---|
| 1 | Kanchana | 24 | 0 | 0 | 1 | 0 | | |
| 2 | Devi | 24 | 0 | 0 | 0 | 0 | | |
| 3 | Bhavana | 30 | 0 | 0 | 0 | 0 | | 39WKS |
| 4 | Thenmozhi | 20 | 0 | 0 | 0 | 0 | | |
| 5 | Rama | 21 | 0 | 0 | 0 | 0 | | |
| 6 | Revathy | 23 | 0 | 0 | 0 | 0 | | |
| 7 | Rasathy | 28 | 0 | 0 | 0 | 0 | | |
| 8 | Deepa | 24 | 0 | 0 | 0 | 0 | 37WKS | 37WKS |
| 9 | Sangeetha | 28 | 0 | 0 | 0 | 0 | | |
| 10 | Vijayalakshmi | 28 | 0 | 0 | 0 | 0 | | |
| 11 | Vijayalakshmi | 20 | 0 | 0 | 0 | 0 | | |
| 12 | Shajitha | 24 | 1 | 0 | 0 | 0 | | 39WKS |
| 13 | Mala | 26 | 0 | 0 | 0 | 0 | | |
| 14 | Sudha | 22 | 0 | 1 | 0 | 1 | 37WKS | 37WKS |
| 15 | Kalaiselvi | 20 | 0 | 0 | 0 | 0 | | |
| 16 | Bhoomadevi | 22 | 0 | 0 | 0 | 0 | | 39WKS |
| 17 | Mohana | 21 | 0 | 0 | 0 | 1 | | |
| 18 | Thenmozhi | 25 | 0 | 0 | 0 | 0 | | |
| 19 | Meenakshi | 24 | 0 | 0 | 1 | 0 | | |
| 20 | Vidhya | 31 | 0 | 0 | 0 | 1 | | |
| 21 | Lakshmi | 25 | 0 | 1 | 1 | 1 | 36WKS | 36WKS |
| 22 | Suguna | 20 | 0 | 0 | 0 | 0 | | |
| 23 | Anushya | 20 | 0 | 0 | 1 | 0 | | |
| 24 | Priya | 22 | 0 | 0 | 1 | 0 | | |
| 25 | Rajeshwari | 37 | 0 | 0 | 0 | 0 | 38WKS | 38WKS |
| 26 | Muthukumari | 22 | 0 | 0 | 0 | 1 | | |
| 27 | Suganya | 27 | 0 | 0 | 0 | 0 | | |
| 28 | Selvi | 22 | 0 | 0 | 0 | 0 | | |
| 29 | Renuka | 20 | 0 | 1 | 0 | 0 | 37WKS2DAYS | 37WKS 2DAYS |
| 30 | Kiladha | 21 | 0 | 0 | 1 | 0 | | |
| 31 | Gomathy | 27 | 0 | 0 | 0 | 0 | | 38WKS |
| 32 | Sumathy | 20 | 0 | 0 | 0 | 0 | | 39WKS |
| 33 | Revthy | 27 | 0 | 0 | 0 | 0 | | |
| 34 | Sathya | 23 | 0 | 0 | 0 | 0 | | |
| 35 | Bhagya | 25 | 0 | 0 | 0 | 0 | | |
| 36 | Karpagam | 22 | 0 | 1 | 1 | 0 | 37WKS | 37WKS |
| 37 | Manju | 27 | 0 | 0 | 0 | 0 | | |
| 38 | Meenakshi | 20 | 0 | 0 | 0 | 0 | | |
| 39 | Naheshwari | 20 | 0 | 0 | 0 | 0 | | |
| 40 | Sundari | 22 | 0 | 0 | 0 | 0 | | |
| 41 | Benazir | 20 | 0 | 0 | 0 | 0 | | |
| 42 | Nadhiya | 21 | 0 | 0 | 0 | 0 | | |

| S. No | Name | Age | Parity | BMI | GA at sampling Previous H/o Preeclampsia Previous H/o Chronic Hypertension | BP |
|---|---|---|---|---|---|---|
| 43 | Mary | 21 | PRIMI | 22.5 | 12WKS | 120/80 |
| 44 | Varalakshmi | 20 | PRIMI | 21 | 12WKS | 100/80 |
| 45 | Seetha | 24 | G2P1L1 | 23 | 11WKS | 100/70 |
| 46 | Durga | 24 | G2P1L1 | 23 | 11WKS | 110/80 |
| 47 | Valli | 24 | G2P1L1 | 22.5 | 12WKS | 100/80 |
| 48 | Vanitha | 28 | PRIMI | 23.5 | 12WKS | 100/70 |
| 49 | Selvi | 20 | PRIMI | 20.5 | 12WKS | 100/70 |
| 50 | Renuka | 23 | PRIMI | 22 | 12WKS | 100/70 |
| 51 | Kiladha | 25 | PRIMI | 22 | 12WKS | 100/70 |
| 52 | Anjali | 27 | G2P1L1 | 23.5 | 11WKS | 100/70 |
| 53 | Manivijaya | 20 | PRIMI | 23 | 11WKS | 120/70 |
| 54 | Ravathy | 27 | G2P1L1 | 24 | 12WKS | 100/70 |
| 55 | Valarmathy | 21 | PRIMI | 20 | 12WKS | 120/80 |
| 56 | Gomathy | 25 | PRIMI | 22 | 11WKS | 100/80 |
| 57 | Amul | 25 | G2P1L1 | 22 | 11WKS | 120/80 |
| 58 | Devi | 25 | G2P1L1 | 20 | 12WKS | 100/80 |
| 59 | Adhilakshmi | 29 | G2P1L1 | 27 | 12WKS | 100/70 |
| 60 | Dhanakodi | 24 | G2P1L1 | 24 | 12WKS | 120/80 |
| 61 | Gayathri | 28 | PRIMI | 20 | 12WKS | 100/80 |
| 62 | Radhika | 27 | G3P2L2 | 24 | 11WKS | 120/80 |
| 63 | Suganthi | 22 | G2A1 | 21 | 11WKS | 120/80 |
| 64 | Vasanthi | 21 | G2A1 | 23 | 12WKS | 120/80 |
| 65 | Babitha | 24 | PRIMI | 22 | 12WKS | 110/80 |
| 66 | Soniya | 22 | PRIMI | 21 | 11WKS | 120/80 |
| 67 | Vanitha | 27 | G2P1L1 | 24 | 12WKS | 110/80 |
| 68 | Pachiyammal | 26 | PRIMI | 20.4 | 11WKS | 110/80 |
| 69 | Suganya | 21 | PRIMI | 21.8 | 11WKS | 110/80 |
| 70 | Bhuvaneshwari | 21 | PRIMI | 24.6 | 11WKS | 110/70 |
| 71 | Malathy | 30 | G3P2L2 | 26.3 | 12WKS | 100/70 |
| 72 | Gayathri | 21 | G2A1 | 23.8 | 12WKS | 110/80 |
| 73 | Indumathy | 20 | PRIMI | 22 | 12WKS | 110/80 |
| 74 | Revathy | 22 | PRIMI | 21.5 | 12WKS | 110/80 |
| 75 | Ashwini | 24 | G3P2L2 | 17.7 | 12WKS | 110/80 |
| 76 | Jennifer | 25 | PRIMI | 17.8 | 11WKS | 100/70 |
| 77 | Sudha | 25 | G2P1L1 | 23.5 | 12WKS | 110/70 |
| 78 | Vidhya | 22 | PRIMI | 19 | 11WKS | 110/70 |
| 79 | Asha | 26 | G2P1L1 | 23.5 | 12WKS | 110/70 |
| 80 | Gomathy | 21 | G3P1L1A1 | 22 | 12WKS | 110/70 |
| 81 | Jeeva | 24 | PRIMI | 23 | 11WKS | 110/70 |
| 82 | Thayamma | 26 | G3P2L2 | 23.5 | 12WKS | 110/70 |
| 83 | Dhanam | 30 | G3P2L2 | 24 | 11WKS | 110/70 |
| 84 | Vijayalakshmi | 28 | PRIMI | 19 | 12WKS | 100/70 |

| S. No | Name | Age | Previous H/o Preeclampsia | Previous H/o Chronic Hypertension | Previous H/oGout | Serum Uric Acid |
|---|---|---|---|---|---|---|
| 43 | Mary | 21 | 0 | 0 | 0 | 2.2mg |
| 44 | Varalakshmi | 20 | 0 | 0 | 0 | 4.3mg |
| 45 | Seetha | 24 | 0 | 0 | 0 | 2.5mg |
| 46 | Durga | 24 | 0 | 0 | 0 | 6.7mg |
| 47 | Valli | 24 | 0 | 0 | 0 | 4.1mg |
| 48 | Vanitha | 28 | 0 | 0 | 0 | 3.4mg |
| 49 | Selvi | 20 | 0 | 0 | 0 | 3.2mg |
| 50 | Renuka | 23 | 0 | 0 | 0 | 3.0mg |
| 51 | Kiladha | 25 | 0 | 0 | 0 | 5.0mg |
| 52 | Anjali | 27 | 0 | 0 | 0 | 2.8mg |
| 53 | Manivijaya | 20 | 0 | 0 | 0 | 5.2mg |
| 54 | Ravathy | 27 | 0 | 0 | 0 | 3.0mg |
| 55 | Valarmathy | 21 | 0 | 0 | 0 | 3.2mg |
| 56 | Gomathy | 25 | 0 | 0 | 0 | 4.0mg |
| 57 | Amul | 25 | 0 | 0 | 0 | 4.2mg |
| 58 | Devi | 25 | 0 | 0 | 0 | 3.7mg |
| 59 | Adhilakshmi | 29 | 0 | 0 | 0 | 5.4mg |
| 60 | Dhanakodi | 24 | 0 | 0 | 0 | 2.5mg |
| 61 | Gayathri | 28 | 0 | 0 | 0 | 3.7mg |
| 62 | Radhika | 27 | 0 | 0 | 0 | 5.6mg |
| 63 | Suganthi | 22 | 0 | 0 | 0 | 2.7mg |
| 64 | Vasanthi | 21 | 0 | 0 | 0 | 2.8mg |
| 65 | Babitha | 24 | 0 | 0 | 0 | 3.7mg |
| 66 | Soniya | 22 | 0 | 0 | 0 | 3mg |
| 67 | Vanitha | 27 | 0 | 0 | 0 | 2.4mg |
| 68 | Pachiyammal | 26 | 0 | 0 | 0 | 5.0mg |
| 69 | Suganya | 21 | 0 | 0 | 0 | 4.1mg |
| 70 | Bhuvaneshwari | 21 | 0 | 0 | 0 | 4.0mg |
| 71 | Malathy | 30 | 0 | 0 | 0 | 5.9mg |
| 72 | Gayathri | 21 | 0 | 0 | 0 | 3.5mg |
| 73 | Indumathy | 20 | 0 | 0 | 0 | 4.3mg |
| 74 | Revathy | 22 | 0 | 0 | 0 | 3.5mg |
| 75 | Ashwini | 24 | 0 | 0 | 0 | 4.1mg |
| 76 | Jennifer | 25 | 0 | 0 | 0 | 3.7mg |
| 77 | Sudha | 25 | 0 | 0 | 0 | 7mg |
| 78 | Vidhya | 22 | 0 | 0 | 0 | 2.6mg |
| 79 | Asha | 26 | 0 | 0 | 0 | 5.4mg |
| 80 | Gomathy | 21 | 0 | 0 | 0 | 4mg |
| 81 | Jeeva | 24 | 0 | 0 | 0 | 3.0mg |
| 82 | Thayamma | 26 | 0 | 0 | 0 | 4.9mg |
| 83 | Dhanam | 30 | 0 | 0 | 0 | 3.5mg |
| 84 | Vijayalakshmi | 28 | 0 | 0 | 0 | 2.5mg |

| S. No | Name | Age | Roll Over Test | Urine Albumin | RFT | LFT | Gestation Hypertension | Preeclampsia |
|---|---|---|---|---|---|---|---|---|
| 43 | Mary | 21 | | nil | N | N | 0 | 0 |
| 44 | Varalakshmi | 20 | | nil | N | N | 0 | 0 |
| 45 | Seetha | 24 | | nil | N | N | 0 | 0 |
| 46 | Durga | 24 | positive | 2+ | N | N | 0 | 0 |
| 47 | Valli | 24 | | nil | N | N | 0 | 0 |
| 48 | Vanitha | 28 | positive | nil | N | N | 1 | 0 |
| 49 | Selvi | 20 | | nil | N | N | 0 | 0 |
| 50 | Renuka | 23 | | nil | N | N | 0 | 0 |
| 51 | Kiladha | 25 | positive | nil | N | N | 1 | 0 |
| 52 | Anjali | 27 | positive | nil | N | N | 1 | 0 |
| 53 | Manivijaya | 20 | | nil | N | N | 0 | 0 |
| 54 | Ravathy | 27 | positive | nil | N | N | 1 | 0 |
| 55 | Valarmathy | 21 | | nil | N | N | 0 | 0 |
| 56 | Gomathy | 25 | | nil | N | N | 0 | 0 |
| 57 | Amul | 25 | | nil | N | N | 0 | 0 |
| 58 | Devi | 25 | | nil | N | N | 0 | 0 |
| 59 | Adhilakshmi | 29 | | nil | N | N | 0 | 0 |
| 60 | Dhanakodi | 24 | | nil | N | N | 0 | 0 |
| 61 | Gayathri | 28 | | nil | N | N | 0 | 0 |
| 62 | Radhika | 27 | | nil | N | N | 0 | 0 |
| 63 | Suganthi | 22 | | nil | N | N | 0 | 0 |
| 64 | Vasanthi | 21 | | nil | N | N | 0 | 0 |
| 65 | Babitha | 24 | | nil | N | N | 0 | 0 |
| 66 | Soniya | 22 | | nil | N | N | 0 | 0 |
| 67 | Vanitha | 27 | | nil | N | N | 0 | 0 |
| 68 | Pachiyammal | 26 | | nil | N | N | 0 | 0 |
| 69 | Suganya | 21 | | nil | N | N | 0 | 0 |
| 70 | Bhuvaneshwari | 21 | | nil | N | N | 0 | 0 |
| 71 | Malathy | 30 | | nil | N | N | 0 | 0 |
| 72 | Gayathri | 21 | | nil | N | N | 0 | 0 |
| 73 | Indumathy | 20 | | nil | N | N | 0 | 0 |
| 74 | Revathy | 22 | | nil | N | N | 0 | 0 |
| 75 | Ashwini | 24 | | nil | N | N | 0 | 0 |
| 76 | Jennifer | 25 | | nil | N | N | 0 | 0 |
| 77 | Sudha | 25 | positive | 3+ | N | N | 0 | 0 |
| 78 | Vidhya | 22 | | nil | N | N | 0 | 0 |
| 79 | Asha | 26 | | nil | N | N | 0 | 0 |
| 80 | Gomathy | 21 | | nil | N | N | 0 | 0 |
| 81 | Jeeva | 24 | | nil | N | N | 0 | 0 |
| 82 | Thayamma | 26 | | nil | N | N | 0 | 0 |
| 83 | Dhanam | 30 | positive | nil | N | N | 1 | 0 |
| 84 | Vijayalakshmi | 28 | | nil | N | N | 0 | 0 |

| S. No | Name | Age | HT+ Hyperurecemia | HPU | Preterm | SGA | GA at whichPreeclampsia is detected | GA at Delivery |
|---|---|---|---|---|---|---|---|---|
| 43 | Mary | 21 | 0 | 0 | 1 | 0 | | |
| 44 | Varalakshmi | 20 | 0 | 0 | 0 | 0 | | |
| 45 | Seetha | 24 | 0 | 0 | 0 | 0 | | |
| 46 | Durga | 24 | 0 | 1 | 0 | 1 | 38WKS | 38WKS |
| 47 | Valli | 24 | 0 | 0 | 0 | 0 | | |
| 48 | Vanitha | 28 | 0 | 0 | 0 | 0 | | 40WKS |
| 49 | Selvi | 20 | 0 | 0 | 0 | 1 | | |
| 50 | Renuka | 23 | 0 | 0 | 0 | 0 | | |
| 51 | Kiladha | 25 | 1 | 0 | 0 | 0 | | 39WKS |
| 52 | Anjali | 27 | 0 | 0 | 0 | 0 | | 39WKS |
| 53 | Manivijaya | 20 | 0 | 0 | 0 | 0 | | |
| 54 | Ravathy | 27 | 0 | 0 | 1 | 0 | | 39WKS |
| 55 | Valarmathy | 21 | 0 | 0 | 0 | 0 | | |
| 56 | Gomathy | 25 | 0 | 0 | 0 | 0 | | |
| 57 | Amul | 25 | 0 | 0 | 0 | 0 | | |
| 58 | Devi | 25 | 0 | 0 | 0 | 0 | | |
| 59 | Adhilakshmi | 29 | 0 | 0 | 0 | 0 | | |
| 60 | Dhanakodi | 24 | 0 | 0 | 0 | 0 | | |
| 61 | Gayathri | 28 | 0 | 0 | 0 | 0 | | |
| 62 | Radhika | 27 | 0 | 0 | 0 | 0 | | |
| 63 | Suganthi | 22 | 0 | 0 | 0 | 0 | | |
| 64 | Vasanthi | 21 | 0 | 0 | 0 | 0 | | |
| 65 | Babitha | 24 | 0 | 0 | 0 | 0 | | |
| 66 | Soniya | 22 | 0 | 0 | 0 | 0 | | |
| 67 | Vanitha | 27 | 0 | 0 | 0 | 0 | | |
| 68 | Pachiyammal | 26 | 0 | 0 | 0 | 0 | | |
| 69 | Suganya | 21 | 0 | 0 | 0 | 0 | | |
| 70 | Bhuvaneshwari | 21 | 0 | 0 | 0 | 0 | | |
| 71 | Malathy | 30 | 0 | 1 | 0 | 0 | 37WKS3DAYS | 37WKS 3DAYS |
| 72 | Gayathri | 21 | 0 | 0 | 0 | 0 | | |
| 73 | Indumathy | 20 | 0 | 0 | 0 | 0 | | |
| 74 | Revathy | 22 | 0 | 0 | 0 | 0 | | |
| 75 | Ashwini | 24 | 0 | 0 | 0 | 0 | | |
| 76 | Jennifer | 25 | 0 | 0 | 0 | 0 | | |
| 77 | Sudha | 25 | 0 | 1 | 1 | 1 | 34WKS | 34WKS2D |
| 78 | Vidhya | 22 | 0 | 0 | 1 | 0 | | |
| 79 | Asha | 26 | 0 | 0 | 0 | 0 | | |
| 80 | Gomathy | 21 | 0 | 0 | 0 | 0 | | |
| 81 | Jeeva | 24 | 0 | 0 | 0 | 0 | | |
| 82 | Thayamma | 26 | 0 | 0 | 0 | 0 | | |
| 83 | Dhanam | 30 | 0 | 0 | 0 | 0 | | 39WKS |
| 84 | Vijayalakshmi | 28 | 0 | 0 | 0 | 0 | | |

| S. No | Name | Age | Parity | BMI | GA at sampling Previous H/o Preeclampsia Previous H/o Chronic Hypertension | BP |
|---|---|---|---|---|---|---|
| 85 | Revathy | 21 | PRIMI | 26.8 | 12WKS | 100/70 |
| 86 | Bhavani | 21 | PRIMI | 22 | 11WKS | 120/70 |
| 87 | Lakshmi | 23 | G2P1L1 | 18 | 12WKS | 120/70 |
| 88 | Geetha | 26 | G2P1L1 | 24.2 | 11WKS | 120/70 |
| 89 | Nisha | 24 | PRIMI | 22.9 | 12WKS | 110/70 |
| 90 | Leela | 27 | PRIMI | 30.5 | 11WKS | 110/70 |
| 91 | Sowmya | 21 | PRIMI | 21.5 | 12WKS | 120/70 |
| 92 | Sudha | 25 | PRIMI | 22 | 11WKS | 120/70 |
| 93 | Soniya | 24 | PRIMI | 22 | 11WKS | 120/70 |
| 94 | Senthamizh | 20 | G2P1L1 | 21 | 12WKS | 120/70 |
| 95 | Uma | 21 | PRIMI | 21 | 11WKS | 120/70 |
| 96 | Rohini | 20 | PRIMI | 20 | 12WKS | 110/70 |
| 97 | Rajeshwari | 26 | G2P1L1 | 18.4 | 11WKS | 120/70 |
| 98 | Dhivya | 26 | PRIMI | 21.3 | 12WKS | 120/70 |
| 99 | Chitra | 19 | PRIMI | 20 | 11WKS | 110/80 |
| 100 | Mubasheera | 28 | PRIMI | 24.4 | 11WKS | 110/80 |
| 101 | Poongavanam | 21 | PRIMI | 19.6 | 11WKS | 110/80 |
| 102 | Nalini | 19 | G2P1L1 | 23.8 | 12WKS | 110/80 |
| 103 | Latha | 26 | G2P1LO | 25 | 11WKS | 120/80 |
| 104 | Srrenidhi | 21 | G2A1 | 20 | 12WKS | 120/80 |
| 105 | Devaki | 24 | PRIMI | 22 | 11WKS | 110/70 |
| 106 | Santha | 26 | PRIMI | 17.4 | 12WKS | 110/70 |
| 107 | Prema | 21 | PRIMI | 20 | 11WKS | 110/70 |
| 108 | Anuradha | 32 | G2P1L1 | 20 | 12WKS | 110/70 |
| 109 | Kavitha | 21 | PRIMI | 22.3 | 11WKS | 110/70 |
| 110 | Rukmani | 25 | PRIMI | 22.3 | 12WKS | 110/70 |
| 111 | Revathy | 24 | PRIMI | 20 | 11WKS | 110/70 |
| 112 | Rukmani | 25 | PRIMI | 25.5 | 12WKS | 110/70 |
| 113 | Rekha | 24 | PRIMI | 21 | 11WKS | 110/70 |
| 114 | Megala | 27 | PRIMI | 21 | 11WKS | 120/70 |
| 115 | Selvi | 23 | G2P1L1 | 28.1 | 11WKS | 120/80 |
| 116 | Viji | 31 | G2P1L1 | 16 | 12WKS | 120/70 |
| 117 | Shanthi | 22 | PRIMI | 29.5 | 11WKS | 120/80 |
| 118 | Lalitha | 20 | PRIMI | 20.3 | 12WKS | 120/70 |
| 119 | Sasikala | 38 | G2P1L1 | 25.5 | 11WKS | 120/70 |
| 120 | Jothi | 30 | G3P1L1A1 | 17.7 | 12WKS | 120/80 |
| 121 | Sugam | 20 | PRIMI | 18 | 12WKS | 120/80 |
| 122 | Selvi | 20 | PRIMI | 22.5 | 11WKS | 120/80 |
| 123 | Bhavani | 39 | PRIMI | 18.4 | 12WKS | 110/80 |
| 124 | Jaya | 21 | G2A1 | 20 | 11WKS | 110/80 |
| 125 | Kokila | 27 | G2P1L1 | 18.4 | 12WKS | 110/80 |
| 126 | Shanthi | 20 | PRIMI | 20 | 12WKS | 110/80 |

| S. No | Name | Age | Previous H/o Preeclampsia | Previous H/o Chronic Hypertension | Previous H/oGout | Serum Uric Acid |
|---|---|---|---|---|---|---|
| 85 | Revathy | 21 | 0 | 0 | 0 | 3.7mg |
| 86 | Bhavani | 21 | 0 | 0 | 0 | 2.4mg |
| 87 | Lakshmi | 23 | 0 | 0 | 0 | 5.0mg |
| 88 | Geetha | 26 | 0 | 0 | 0 | 4.0mg |
| 89 | Nisha | 24 | 0 | 0 | 0 | 3.8mg |
| 90 | Leela | 27 | 0 | 0 | 0 | 4.3mg |
| 91 | Sowmya | 21 | 0 | 0 | 0 | 5.5mg |
| 92 | Sudha | 25 | 0 | 0 | 0 | 3.5mg |
| 93 | Soniya | 24 | 0 | 0 | 0 | 3.2mg |
| 94 | Senthamizh | 20 | 0 | 0 | 0 | 4.1mg |
| 95 | Uma | 21 | 0 | 0 | 0 | 4.6mg |
| 96 | Rohini | 20 | 0 | 0 | 0 | 2.8mg |
| 97 | Rajeshwari | 26 | 0 | 0 | 0 | 4.9mg |
| 98 | Dhivya | 26 | 0 | 0 | 0 | 4.9mg |
| 99 | Chitra | 19 | 0 | 0 | 0 | 7.2mg |
| 100 | Mubasheera | 28 | 0 | 0 | 0 | 5.0mg |
| 101 | Poongavanam | 21 | 0 | 0 | 0 | 2.8mg |
| 102 | Nalini | 19 | 0 | 0 | 0 | 4.0mg |
| 103 | Latha | 26 | 0 | 0 | 0 | 6.9mg |
| 104 | Srrenidhi | 21 | 0 | 0 | 0 | 6.3mg |
| 105 | Devaki | 24 | 0 | 0 | 0 | 4.4mg |
| 106 | Santha | 26 | 0 | 0 | 0 | 2.4mg |
| 107 | Prema | 21 | 0 | 0 | 0 | 3.5mg |
| 108 | Anuradha | 32 | 0 | 0 | 0 | 2.5mg |
| 109 | Kavitha | 21 | 0 | 0 | 0 | 2.7mg |
| 110 | Rukmani | 25 | 0 | 0 | 0 | 2.5mg |
| 111 | Revathy | 24 | 0 | 0 | 0 | 4.3mg |
| 112 | Rukmani | 25 | 0 | 0 | 0 | 3.7mg |
| 113 | Rekha | 24 | 0 | 0 | 0 | 2.7mg |
| 114 | Megala | 27 | 0 | 0 | 0 | 2.7mg |
| 115 | Selvi | 23 | 0 | 0 | 0 | 3.4mg |
| 116 | Viji | 31 | 0 | 0 | 0 | 2.8mg |
| 117 | Shanthi | 22 | 0 | 0 | 0 | 2.8mg |
| 118 | Lalitha | 20 | 0 | 0 | 0 | 3.2mg |
| 119 | Sasikala | 38 | 0 | 0 | 0 | 3.2mg |
| 120 | Jothi | 30 | 0 | 0 | 0 | 3.8mg |
| 121 | Sugam | 20 | 0 | 0 | 0 | 5.8mg |
| 122 | Selvi | 20 | 0 | 0 | 0 | 2.7mg |
| 123 | Bhavani | 39 | 0 | 0 | 0 | 3.5mg |
| 124 | Jaya | 21 | 0 | 0 | 0 | 2.8mg |
| 125 | Kokila | 27 | 0 | 0 | 0 | 4.9mg |
| 126 | Shanthi | 20 | 0 | 0 | 0 | 7.2mg |

| S. No | Name | Age | Roll Over Test | Urine Albumin | RFT | LFT | Gestation Hypertension | Preeclampsia |
|---|---|---|---|---|---|---|---|---|
| 85 | Revathy | 21 | | nil | N | N | 0 | 0 |
| 86 | Bhavani | 21 | | nil | N | N | 0 | 0 |
| 87 | Lakshmi | 23 | | nil | N | N | 0 | 0 |
| 88 | Geetha | 26 | | nil | N | N | 0 | 0 |
| 89 | Nisha | 24 | | nil | N | N | 0 | 0 |
| 90 | Leela | 27 | | nil | N | N | 0 | 0 |
| 91 | Sowmya | 21 | | nil | N | N | 0 | 0 |
| 92 | Sudha | 25 | | nil | N | N | 0 | 0 |
| 93 | Soniya | 24 | | nil | N | N | 0 | 0 |
| 94 | Senthamizh | 20 | | nil | N | N | 0 | 0 |
| 95 | Uma | 21 | | nil | N | N | 0 | 0 |
| 96 | Rohini | 20 | | nil | N | N | 0 | 0 |
| 97 | Rajeshwari | 26 | | nil | N | N | 0 | 0 |
| 98 | Dhivya | 26 | | nil | N | N | 0 | 0 |
| 99 | Chitra | 19 | positive | 2+ | N | N | 0 | 0 |
| 100 | Mubasheera | 28 | | nil | N | N | 0 | 0 |
| 101 | Poongavanam | 21 | | nil | N | N | 0 | 0 |
| 102 | Nalini | 19 | | nil | N | N | 0 | 0 |
| 103 | Latha | 26 | positive | 2+ | N | N | 0 | 0 |
| 104 | Srrenidhi | 21 | | nil | N | N | 0 | 0 |
| 105 | Devaki | 24 | | nil | N | N | 0 | 0 |
| 106 | Santha | 26 | | nil | N | N | 0 | 0 |
| 107 | Prema | 21 | | nil | N | N | 0 | 0 |
| 108 | Anuradha | 32 | positive | nil | N | N | 1 | 0 |
| 109 | Kavitha | 21 | | nil | N | N | 0 | 0 |
| 110 | Rukmani | 25 | | nil | N | N | 0 | 0 |
| 111 | Revathy | 24 | | nil | N | N | 0 | 0 |
| 112 | Rukmani | 25 | | nil | N | N | 0 | 0 |
| 113 | Rekha | 24 | | nil | N | N | 0 | 0 |
| 114 | Megala | 27 | | nil | N | N | 0 | 0 |
| 115 | Selvi | 23 | | nil | N | N | 0 | 0 |
| 116 | Viji | 31 | positive | 2+ | N | N | 0 | 1 |
| 117 | Shanthi | 22 | | nil | N | N | 0 | 0 |
| 118 | Lalitha | 20 | | nil | N | N | 0 | 0 |
| 119 | Sasikala | 38 | positive | nil | N | N | 1 | 0 |
| 120 | Jothi | 30 | | nil | N | N | 0 | 0 |
| 121 | Sugam | 20 | positive | nil | N | N | 0 | 0 |
| 122 | Selvi | 20 | | nil | N | N | 0 | 0 |
| 123 | Bhavani | 39 | | nil | N | N | 0 | 0 |
| 124 | Jaya | 21 | | nil | N | N | 0 | 0 |
| 125 | Kokila | 27 | | nil | N | N | 0 | 0 |
| 126 | Shanthi | 20 | positive | 3+ | N | N | 0 | 0 |

| S. No | Name | Age | HT+ Hyperurecemia | HPU | Preterm | SGA | GA at whichPreeclampsia is detected | GA at Delivery |
|---|---|---|---|---|---|---|---|---|
| 85 | Revathy | 21 | 0 | 0 | 0 | 0 | | |
| 86 | Bhavani | 21 | 0 | 0 | 0 | 1 | | |
| 87 | Lakshmi | 23 | 0 | 0 | 0 | 0 | | |
| 88 | Geetha | 26 | 0 | 0 | 0 | 0 | | |
| 89 | Nisha | 24 | 0 | 0 | 0 | 0 | | |
| 90 | Leela | 27 | 0 | 0 | 0 | 0 | | |
| 91 | Sowmya | 21 | 0 | 0 | 0 | 0 | | |
| 92 | Sudha | 25 | 0 | 0 | 0 | 0 | | |
| 93 | Soniya | 24 | 0 | 0 | 0 | 0 | | |
| 94 | Senthamizh | 20 | 0 | 0 | 0 | 0 | | |
| 95 | Uma | 21 | 0 | 0 | 0 | 0 | | |
| 96 | Rohini | 20 | 0 | 0 | 1 | 1 | | |
| 97 | Rajeshwari | 26 | 0 | 0 | 0 | 0 | | |
| 98 | Dhivya | 26 | 0 | 0 | 0 | 0 | | |
| 99 | Chitra | 19 | 0 | 1 | 1 | 0 | 35WKS | 35WKS |
| 100 | Mubasheera | 28 | 0 | 0 | 0 | 0 | | |
| 101 | Poongavanam | 21 | 0 | 0 | 0 | 0 | | |
| 102 | Nalini | 19 | 0 | 0 | 0 | 0 | | |
| 103 | Latha | 26 | 0 | 1 | 0 | 0 | 37WKS | 37WKS |
| 104 | Srrenidhi | 21 | 0 | 0 | 0 | 0 | | |
| 105 | Devaki | 24 | 0 | 0 | 0 | 0 | | |
| 106 | Santha | 26 | 0 | 0 | 1 | 0 | | |
| 107 | Prema | 21 | 0 | 0 | 0 | 0 | | |
| 108 | Anuradha | 32 | 0 | 0 | 0 | 0 | | 40WKS |
| 109 | Kavitha | 21 | 0 | 0 | 0 | 0 | | |
| 110 | Rukmani | 25 | 0 | 0 | 0 | 0 | | |
| 111 | Revathy | 24 | 0 | 0 | 0 | 0 | | |
| 112 | Rukmani | 25 | 0 | 0 | 0 | 0 | | |
| 113 | Rekha | 24 | 0 | 0 | 0 | 0 | | |
| 114 | Megala | 27 | 0 | 0 | 0 | 0 | | |
| 115 | Selvi | 23 | 0 | 0 | 0 | 0 | | |
| 116 | Viji | 31 | 0 | 0 | 0 | 0 | 39WKS | 39WKS |
| 117 | Shanthi | 22 | 0 | 0 | 0 | 0 | | |
| 118 | Lalitha | 20 | 0 | 0 | 0 | 0 | | |
| 119 | Sasikala | 38 | 0 | 0 | 0 | 0 | | |
| 120 | Jothi | 30 | 0 | 0 | 0 | 0 | | |
| 121 | Sugam | 20 | 0 | 1 | 0 | 0 | 38WKS | 38WKS |
| 122 | Selvi | 20 | 0 | 0 | 0 | 0 | | |
| 123 | Bhavani | 39 | 0 | 0 | 0 | 0 | | |
| 124 | Jaya | 21 | 0 | 0 | 0 | 0 | | |
| 125 | Kokila | 27 | 0 | 0 | 0 | 0 | | |
| 126 | Shanthi | 20 | 0 | 1 | 0 | 0 | 37WKS | 37WKS |

| S. No | Name | Age | Parity | BMI | GA at sampling Previous H/o Preeclampsia Previous H/o Chronic Hypertension | BP |
|---|---|---|---|---|---|---|
| 127 | Parveena | 23 | PRIMI | 21.3 | 12WKS | 110/80 |
| 128 | Amudha | 28 | G2P1L1 | 22.9 | 11WKS | 110/70 |
| 129 | Kanmani | 33 | G2P1L1 | 21.3 | 11WKS | 100/70 |
| 130 | Jeeva | 21 | G2P1L1 | 24.2 | 12WKS | 100/70 |
| 131 | Sarala | 32 | PRIMI | 30.5 | 12WKS | 110/70 |
| 132 | Sheela | 27 | PRIMI | 18 | 11WKS | 110/80 |
| 133 | Sathya | 23 | PRIMI | 22.9 | 12WKS | 110/80 |
| 134 | Chitra | 28 | PRIMI | 31.5 | 11WKS | 110/80 |
| 135 | Jaya | 26 | G2P1L1 | 24 | 12WKS | 110/80 |
| 136 | Shanthi | 21 | PRIMI | 24.2 | 12WKS | 110/80 |
| 137 | Fathima | 27 | G2P1L1 | 22.9 | 11WKS | 110/80 |
| 138 | Tamil | 19 | PRIMI | 21 | 12WKS | 100/70 |
| 139 | Sabeena | 30 | PRIMI | 24 | 11WKS | 100/70 |
| 140 | Viji | 26 | G2P1L1 | 23 | 12WKS | 100/80 |
| 141 | Prema | 21 | PRIMI | 22 | 11WKS | 100/80 |
| 142 | Lakshmi | 26 | G2P1L1 | 23 | 12WKS | 100/80 |
| 143 | Zaibunisha | 19 | PRIMI | 20 | 11WKS | 120/80 |
| 144 | Manitha | 21 | PRIMI | 25.9 | 12WKS | 120/80 |
| 145 | Annkamu | 25 | G2P1L1 | 22 | 11WKS | 120/80 |
| 146 | Shithya | 26 | G2P1L1 | 21 | 12WKS | 110/80 |
| 147 | Sasikala | 19 | PRIMI | 21 | 11WKS | 120/80 |
| 148 | Nandhini | 21 | PRIMI | 22 | 12WKS | 110/80 |
| 149 | Priya | 25 | G2P1L1 | 23 | 11WKS | 110/80 |
| 150 | Archana | 26 | G2P1L1 | 23 | 12WKS | 120/80 |
| 151 | Thenmozhi | 22 | G4P1L1A2 | 22.5 | 11WKS | 110/80 |
| 152 | Shanthi | 21 | PRIMI | 20 | 12WKS | 110/80 |
| 153 | Shyamala | 21 | PRIMI | 21.5 | 11WKS | 120/80 |
| 154 | Aameena | 24 | G2P1L1 | 22 | 12WKS | 110/80 |
| 155 | Samundeewar | 21 | PRIMI | 22 | 11WKS | 110/80 |
| 156 | Mala | 25 | G2P1L1 | 22.5 | 12WKS | 110/80 |
| 157 | Sudha | 23 | PRIMI | 22 | 11WKS | 120/80 |
| 158 | Renuka | 20 | PRIMI | 21 | 12WKS | 120/80 |
| 159 | Geetja | 21 | PRIMI | 21 | 11WKS | 110/80 |
| 160 | Chitra | 20 | PRIMI | 21.5 | 12WKS | 110/80 |
| 161 | Indrani | 25 | G2P1L1 | 22 | 11WKS | 120/80 |
| 162 | Monika | 26 | PRIMI | 22 | 12WKS | 120/80 |
| 163 | Usha | 30 | G3P2L2 | 23.5 | 12WKS | 120/80 |
| 164 | Lakshmi | 24 | PRIMI | 23.5 | 11WKS | 120/80 |
| 165 | Savithri | 21 | PRIMI | 22 | 11WKS | 120/80 |
| 166 | Sarala | 20 | PRIMI | 21 | 12WKS | 110/80 |
| 167 | Manimegalai | 21 | PRIMI | 21.5 | 11WKS | 110/80 |
| 168 | Devi | 21 | PRIMI | 22 | 12WKS | 110/80 |

| S. No | Name | Age | Previous H/o Preeclampsia | Previous H/o Chronic Hypertension | Previous H/o Gout | Serum Uric Acid |
|---|---|---|---|---|---|---|
| 127 | Parveena | 23 | 0 | 0 | 0 | 4.9mg |
| 128 | Amudha | 28 | 0 | 0 | 0 | 3.8mg |
| 129 | Kanmani | 33 | 0 | 0 | 0 | 4.9mg |
| 130 | Jeeva | 21 | 0 | 0 | 0 | 4.0mg |
| 131 | Sarala | 32 | 0 | 0 | 0 | 4.3mg |
| 132 | Sheela | 27 | 0 | 0 | 0 | 5.0mg |
| 133 | Sathya | 23 | 0 | 0 | 0 | 3.8mg |
| 134 | Chitra | 28 | 0 | 0 | 0 | 5.5mg |
| 135 | Jaya | 26 | 0 | 0 | 0 | 3.2mg |
| 136 | Shanthi | 21 | 0 | 0 | 0 | 4.0mg |
| 137 | Fathima | 27 | 0 | 0 | 0 | 3.8mg |
| 138 | Tamil | 19 | 0 | 0 | 0 | 2.4mg |
| 139 | Sabeena | 30 | 0 | 0 | 0 | 2.9mg |
| 140 | Viji | 26 | 0 | 0 | 0 | 5.4mg |
| 141 | Prema | 21 | 0 | 0 | 0 | 5.6mg |
| 142 | Lakshmi | 26 | 0 | 0 | 0 | 6.8mg |
| 143 | Zaibunisha | 19 | 0 | 0 | 0 | 3.0mg |
| 144 | Manitha | 21 | 0 | 0 | 0 | 2.3mg |
| 145 | Annkamu | 25 | 0 | 0 | 0 | 3.7mg |
| 146 | Shithya | 26 | 0 | 0 | 0 | 2.0mg |
| 147 | Sasikala | 19 | 0 | 0 | 0 | 3.0mg |
| 148 | Nandhini | 21 | 0 | 0 | 0 | 2.1mg |
| 149 | Priya | 25 | 0 | 0 | 0 | 3.1mg |
| 150 | Archana | 26 | 0 | 0 | 0 | 3.7mg |
| 151 | Thenmozhi | 22 | 0 | 0 | 0 | 5.1mg |
| 152 | Shanthi | 21 | 0 | 0 | 0 | 4.5mg |
| 153 | Shyamala | 21 | 0 | 0 | 0 | 3.3mg |
| 154 | Aameena | 24 | 0 | 0 | 0 | 3.0mg |
| 155 | Samundeewar | 21 | 0 | 0 | 0 | 3.2mg |
| 156 | Mala | 25 | 0 | 0 | 0 | 4.0mg |
| 157 | Sudha | 23 | 0 | 0 | 0 | 2.4mg |
| 158 | Renuka | 20 | 0 | 0 | 0 | 6.0mg |
| 159 | Geetja | 21 | 0 | 0 | 0 | 5.4mg |
| 160 | Chitra | 20 | 0 | 0 | 0 | 3.5mg |
| 161 | Indrani | 25 | 0 | 0 | 0 | 3.2mg |
| 162 | Monika | 26 | 0 | 0 | 0 | 4.1mg |
| 163 | Usha | 30 | 0 | 0 | 0 | 2.9mg |
| 164 | Lakshmi | 24 | 0 | 0 | 0 | 2.9mg |
| 165 | Savithri | 21 | 0 | 0 | 0 | 2.4mg |
| 166 | Sarala | 20 | 0 | 0 | 0 | 3.2mg |
| 167 | Manimegalai | 21 | 0 | 0 | 0 | 3.1mg |
| 168 | Devi | 21 | 0 | 0 | 0 | 3.4mg |

| S. No | Name | Age | Roll Over Test | Urine Albumin | RFT | LFT | Gestation Hypertension | Preeclampsia |
|---|---|---|---|---|---|---|---|---|
| 127 | Parveena | 23 | | nil | N | N | 0 | 0 |
| 128 | Amudha | 28 | | nil | N | N | 0 | 0 |
| 129 | Kanmani | 33 | | nil | N | N | 0 | 0 |
| 130 | Jeeva | 21 | | nil | N | N | 0 | 0 |
| 131 | Sarala | 32 | | nil | N | N | 0 | 0 |
| 132 | Sheela | 27 | positive | 2+ | N | N | 0 | 0 |
| 133 | Sathya | 23 | | nil | NN | N | 0 | 0 |
| 134 | Chitra | 28 | | nil | N | N | 0 | 0 |
| 135 | Jaya | 26 | | nil | N | N | 0 | 0 |
| 136 | Shanthi | 21 | | nil | N | N | 0 | 0 |
| 137 | Fathima | 27 | | nil | N | N | 0 | 0 |
| 138 | Tamil | 19 | | nil | N | N | 0 | 0 |
| 139 | Sabeena | 30 | | nil | N | N | 0 | 0 |
| 140 | Viji | 26 | | nil | N | N | 0 | 0 |
| 141 | Prema | 21 | | nil | N | N | 0 | 0 |
| 142 | Lakshmi | 26 | positive | nil | N | N | 1 | 0 |
| 143 | Zaibunisha | 19 | | nil | N | N | 0 | 0 |
| 144 | Manitha | 21 | | nil | N | N | 0 | 0 |
| 145 | Annkamu | 25 | | nil | N | N | 0 | 0 |
| 146 | Shithya | 26 | | nil | N | N | 0 | 0 |
| 147 | Sasikala | 19 | | nil | N | N | 0 | 0 |
| 148 | Nandhini | 21 | | nil | N | N | 0 | 0 |
| 149 | Priya | 25 | | nil | N | N | 0 | 0 |
| 150 | Archana | 26 | | nil | N | N | 0 | 0 |
| 151 | Thenmozhi | 22 | | nil | N | N | 0 | 0 |
| 152 | Shanthi | 21 | | nil | N | N | 0 | 0 |
| 153 | Shyamala | 21 | | nil | N | N | 0 | 0 |
| 154 | Aameena | 24 | | nil | N | N | 0 | 0 |
| 155 | Samundeewar | 21 | | nil | N | N | 0 | 0 |
| 156 | Mala | 25 | | nil | N | N | 0 | 0 |
| 157 | Sudha | 23 | | nil | N | N | 0 | 0 |
| 158 | Renuka | 20 | | nil | N | N | 0 | 0 |
| 159 | Geetja | 21 | | nil | N | N | 0 | 0 |
| 160 | Chitra | 20 | | nil | N | N | 0 | 0 |
| 161 | Indrani | 25 | | nil | N | N | 0 | 0 |
| 162 | Monika | 26 | | nil | N | N | 0 | 0 |
| 163 | Usha | 30 | | nil | N | N | 1 | 0 |
| 164 | Lakshmi | 24 | | nil | N | N | 0 | 0 |
| 165 | Savithri | 21 | | nil | N | N | 0 | 0 |
| 166 | Sarala | 20 | | nil | N | N | 0 | 0 |
| 167 | Manimegalai | 21 | | nil | N | N | 0 | 0 |
| 168 | Devi | 21 | | nil | N | N | 0 | 0 |

| S. No | Name | Age | HT+ Hyperurecemia | HPU | Preterm | SGA | GA at whichPreeclampsia is Detected | GA at Delivery |
|---|---|---|---|---|---|---|---|---|
| 127 | Parveena | 23 | 0 | 0 | 0 | 0 | | |
| 128 | Amudha | 28 | 0 | 0 | 0 | 0 | | |
| 129 | Kanmani | 33 | 0 | 0 | 0 | 0 | | |
| 130 | Jeeva | 21 | 0 | 0 | 0 | 0 | | |
| 131 | Sarala | 32 | 0 | 0 | 0 | 0 | | |
| 132 | Sheela | 27 | 0 | 1 | 0 | 0 | 38WKS | 38WKS |
| 133 | Sathya | 23 | 0 | 0 | 0 | 0 | | |
| 134 | Chitra | 28 | 0 | 0 | 0 | 0 | | |
| 135 | Jaya | 26 | 0 | 0 | 0 | 0 | | |
| 136 | Shanthi | 21 | 0 | 0 | 0 | 0 | | |
| 137 | Fathima | 27 | 0 | 0 | 0 | 0 | | |
| 138 | Tamil | 19 | 0 | 0 | 0 | 0 | | |
| 139 | Sabeena | 30 | 0 | 0 | 0 | 0 | | |
| 140 | Viji | 26 | 0 | 0 | 0 | 0 | | |
| 141 | Prema | 21 | 0 | 0 | 0 | 0 | | |
| 142 | Lakshmi | 26 | 1 | 0 | 0 | 0 | | 39WKS |
| 143 | Zaibunisha | 19 | 0 | 0 | 0 | 0 | | |
| 144 | Manitha | 21 | 0 | 0 | 0 | 0 | | |
| 145 | Annkamu | 25 | 0 | 0 | 0 | 0 | | |
| 146 | Shithya | 26 | 0 | 0 | 0 | 0 | | |
| 147 | Sasikala | 19 | 0 | 0 | 0 | 0 | | |
| 148 | Nandhini | 21 | 0 | 0 | 0 | 0 | | |
| 149 | Priya | 25 | 0 | 0 | 0 | 0 | | |
| 150 | Archana | 26 | 0 | 0 | 0 | 0 | | |
| 151 | Thenmozhi | 22 | 0 | 0 | 0 | 0 | | |
| 152 | Shanthi | 21 | 0 | 0 | 0 | 0 | | |
| 153 | Shyamala | 21 | 0 | 0 | 0 | 1 | | |
| 154 | Aameena | 24 | 0 | 0 | 0 | 0 | | |
| 155 | Samundeewar | 21 | 0 | 0 | 0 | 0 | | |
| 156 | Mala | 25 | 0 | 0 | 0 | 0 | | |
| 157 | Sudha | 23 | 0 | 0 | 0 | 1 | | |
| 158 | Renuka | 20 | 0 | 0 | 0 | 0 | | |
| 159 | Geetja | 21 | 0 | 0 | 0 | 0 | | |
| 160 | Chitra | 20 | 0 | 0 | 0 | 0 | | |
| 161 | Indrani | 25 | 0 | 0 | 0 | 0 | | |
| 162 | Monika | 26 | 0 | 0 | 0 | 0 | | |
| 163 | Usha | 30 | 0 | 0 | 1 | 0 | | 39WKS |
| 164 | Lakshmi | 24 | 0 | 0 | 0 | 0 | | |
| 165 | Savithri | 21 | 0 | 0 | 0 | 0 | | |
| 166 | Sarala | 20 | 0 | 0 | 0 | 0 | | |
| 167 | Manimegalai | 21 | 0 | 0 | 0 | 0 | | |
| 168 | Devi | 21 | 0 | 0 | 0 | 0 | | |

| S. No | Name | Age | Parity | BMI | GA at sampling Previous H/o Preeclampsia Previous H/o Chronic Hypertension | BP |
|---|---|---|---|---|---|---|
| 169 | Selvi | 26 | PRIMI | 23 | 12WKS | 110/80 |
| 170 | Thennarasi | 24 | PRIMI | 22.5 | 10WKS | 120/80 |
| 171 | Soniya | 22 | PRIMI | 23.5 | 11WKS | 110/80 |
| 172 | Sundari | 20 | PRIMI | 21 | 12WKS | 120/80 |
| 173 | Pushpa | 21 | PRIMI | 22 | 12WKS | 120/80 |
| 174 | Subhashini | 24 | G2P1L1 | 23.5 | 11WKS | 120/80 |
| 175 | Dabreen | 26 | G2P1L1 | 23.5 | 12WKS | 110/80 |
| 176 | Sivaranjani | 22 | PRIMI | 23 | 12WKS | 110/80 |
| 177 | Seetha | 24 | G2P1L1 | 23.5 | 12WKS | 120/80 |
| 178 | Kavitha | 22 | PRIMI | 22 | 12WKS | 120/80 |
| 179 | Kalaiselvi | 20 | PRIMI | 21.8 | 11WKS | 120/80 |
| 180 | Manju | 25 | PRIMI | 23.4 | 11WKS | 110/80 |
| 181 | Priya | 24 | PRIMI | 19.5 | 12WKS | 120/80 |
| 182 | Meera | 22 | PRIMI | 23.8 | 11WKS | 120/80 |
| 183 | Yamuna | 23 | PRIMI | 21.8 | 12WKS | 120/80 |
| 184 | Govindammal | 22 | PRIMI | 18.5 | 11WKS | 110/80 |
| 185 | Saradha | 22 | PRIMI | 20.5 | 10WKS | 120/80 |
| 186 | Krishnaveni | 22 | PRIMI | 21.4 | 12WKS | 110/80 |
| 187 | Jeeva | 24 | G2P1L1 | 23.6 | 12WKS | 110/80 |
| 188 | Sumitha | 22 | PRIMI | 25.9 | 12WKS | 110/80 |
| 189 | Shalini | 23 | PRIMI | 22.9 | 12WKS | 110/80 |
| 190 | Vinu | 22 | PRIMI | 20 | 12WKS | 120/80 |
| 191 | Priyanka | 22 | PRIMI | 18.4 | 12WKS | 120/80 |
| 192 | Keerthana | 24 | G2P1L1 | 24.2 | 11WKS | 120/80 |
| 193 | Nithya | 23 | PRIMI | 20 | 12WKS | 120/80 |
| 194 | Vanaja | 22 | PRIMI | 21 | 11WKS | 110/80 |
| 195 | Gomathy | 23 | PRIMI | 19.6 | 12WKS | 110/80 |
| 196 | Roja | 25 | G2P1L1 | 20.2 | 11WKS | 120/80 |
| 197 | Padmavathy | 22 | PRIMI | 21 | 12WKS | 110/80 |

| S. No | Name | Age | Previous H/o Preeclampsia | Previous H/o Chronic Hypertension | Previous H/oGout | Serum Uric Acid |
|---|---|---|---|---|---|---|
| 169 | Selvi | 26 | 0 | 0 | 0 | 3.2mg |
| 170 | Thennarasi | 24 | 0 | 0 | 0 | 3.6mg |
| 171 | Soniya | 22 | 0 | 0 | 0 | 3.2mg |
| 172 | Sundari | 20 | 0 | 0 | 0 | 2.8mg |
| 173 | Pushpa | 21 | 0 | 0 | 0 | 2.4mg |
| 174 | Subhashini | 24 | 0 | 0 | 0 | 2.2mg |
| 175 | Dabreen | 26 | 0 | 0 | 0 | 2.8mg |
| 176 | Sivaranjani | 22 | 0 | 0 | 0 | 4.0mg |
| 177 | Seetha | 24 | 0 | 0 | 0 | 3.5mg |
| 178 | Kavitha | 22 | 0 | 0 | 0 | 2.9mg |
| 179 | Kalaiselvi | 20 | 0 | 0 | 0 | 3.8mg |

| | | | | | | |
|---|---|---|---|---|---|---|
| 180 | Manju | 25 | 0 | 0 | 0 | 3.4mg |
| 181 | Priya | 24 | 0 | 0 | 0 | 3.2mg |
| 182 | Meera | 22 | 0 | 0 | 0 | 3.6mg |
| 183 | Yamuna | 23 | 0 | 0 | 0 | 3.2mg |
| 184 | Govindammal | 22 | 0 | 0 | 0 | 3.4mg |
| 185 | Saradha | 22 | 0 | 0 | 0 | 3.2mg |
| 186 | Krishnaveni | 22 | 0 | 0 | 0 | 3.1mg |
| 187 | Jeeva | 24 | 0 | 0 | 0 | 3.2mg |
| 188 | Sumitha | 22 | 0 | 0 | 0 | 3.0mg |
| 189 | Shalini | 23 | 0 | 0 | 0 | 3.2mg |
| 190 | Vinu | 22 | 0 | 0 | 0 | 3.4mg |
| 191 | Priyanka | 22 | 0 | 0 | 0 | 3.2mg |
| 192 | Keerthana | 24 | 0 | 0 | 0 | 3.5mg |
| 193 | Nithya | 23 | 0 | 0 | 0 | 2.9mg |
| 194 | Vanaja | 22 | 0 | 0 | 0 | 4.0mg |
| 195 | Gomathy | 23 | 0 | 0 | 0 | 3.7mg |
| 196 | Roja | 25 | 0 | 0 | 0 | 3.2mg |
| 197 | Padmavathy | 22 | 0 | 0 | 0 | 3.5mg |

| **S. No** | **Name** | **Age** | **Roll Over Test** | **Urine Albumin** | **RFT** | **LFT** | **Gestation Hypertension** | **Preeclampsia** |
|---|---|---|---|---|---|---|---|---|
| 169 | Selvi | 26 | positive | nil | N | N | 1 | 0 |
| 170 | Thennarasi | 24 | | nil | N | N | 0 | 0 |
| 171 | Soniya | 22 | | nil | N | N | 0 | 0 |
| 172 | Sundari | 20 | | nil | N | N | 0 | 0 |
| 173 | Pushpa | 21 | | nil | N | N | 0 | 0 |
| 174 | Subhashini | 24 | | nil | N | N | 0 | 0 |
| 175 | Dabreen | 26 | | nil | N | N | 0 | 0 |
| 176 | Sivaranjani | 22 | | nil | N | N | 0 | 0 |
| 177 | Seetha | 24 | | nil | N | N | 0 | 0 |
| 178 | Kavitha | 22 | | nil | N | N | 1 | 0 |
| 179 | Kalaiselvi | 20 | | nil | N | N | 0 | 0 |
| 180 | Manju | 25 | | nil | N | N | 0 | 0 |
| 181 | Priya | 24 | | nil | N | N | 0 | 0 |
| 182 | Meera | 22 | positive | nil | N | N | 1 | 0 |
| 183 | Yamuna | 23 | | nil | N | N | 0 | 0 |
| 184 | Govindammal | 22 | | nil | N | N | 0 | 0 |
| 185 | Saradha | 22 | | nil | N | N | 0 | 0 |
| 186 | Krishnaveni | 22 | | nil | N | N | 0 | 0 |
| 187 | Jeeva | 24 | | nil | N | N | 0 | 0 |
| 188 | Sumitha | 22 | | nil | N | N | 0 | 0 |
| 189 | Shalini | 23 | positive | nil | N | N | 1 | 0 |
| 190 | Vinu | 22 | | nil | N | N | 0 | 0 |
| 191 | Priyanka | 22 | | nil | N | N | 0 | 0 |
| 192 | Keerthana | 24 | | nil | N | N | 0 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 193 | Nithya | 23 | | nil | N | N | 0 | 0 |
| 194 | Vanaja | 22 | | nil | N | N | 0 | 0 |
| 195 | Gomathy | 23 | | nil | N | N | 0 | 0 |
| 196 | Roja | 25 | positive | nil | N | N | 1 | 0 |
| 197 | Padmavathy | 22 | | nil | N | N | 0 | 0 |

| **S. No** | **Name** | **Age** | **HT+ Hyperurecemia** | **HPU** | **Preterm** | **SGA** | **GA at whichPreeclampsia is detected** | **GA at Delivery** |
|---|---|---|---|---|---|---|---|---|
| 169 | Selvi | 26 | 0 | 0 | 0 | 0 | | 39WKS3DAYS |
| 170 | Thennarasi | 24 | 0 | 0 | 0 | 0 | | |
| 171 | Soniya | 22 | 0 | 0 | 0 | 0 | | |
| 172 | Sundari | 20 | 0 | 0 | 0 | 0 | | |
| 173 | Pushpa | 21 | 0 | 0 | 0 | 0 | | |
| 174 | Subhashini | 24 | 0 | 0 | 0 | 1 | | |
| 175 | Dabreen | 26 | 0 | 0 | 0 | 0 | | |
| 176 | Sivaranjani | 22 | 0 | 0 | 0 | 0 | | |
| 177 | Seetha | 24 | 0 | 0 | 0 | 0 | | |
| 178 | Kavitha | 22 | 0 | 0 | 0 | 0 | | |
| 179 | Kalaiselvi | 20 | 0 | 0 | 0 | 0 | | |
| 180 | Manju | 25 | 0 | 0 | 0 | 0 | | |
| 181 | Priya | 24 | 0 | 0 | 0 | 0 | | |
| 182 | Meera | 22 | 0 | 0 | 0 | 0 | | 39WKS |
| 183 | Yamuna | 23 | 0 | 0 | 0 | 0 | | |
| 184 | Govindammal | 22 | 0 | 0 | 0 | 0 | | |
| 185 | Saradha | 22 | 0 | 0 | 0 | 0 | | |
| 186 | Krishnaveni | 22 | 0 | 0 | 0 | 0 | | |
| 187 | Jeeva | 24 | 0 | 0 | 0 | 0 | | |
| 188 | Sumitha | 22 | 0 | 0 | 0 | 0 | | |
| 189 | Shalini | 23 | 0 | 0 | 0 | 0 | | 40WKS |
| 190 | Vinu | 22 | 0 | 0 | 0 | 0 | | |
| 191 | Priyanka | 22 | 0 | 0 | 0 | 0 | | |
| 192 | Keerthana | 24 | 0 | 0 | 0 | 0 | | |
| 193 | Nithya | 23 | 0 | 0 | 0 | 0 | | |
| 194 | Vanaja | 22 | 0 | 0 | 0 | 0 | | |
| 195 | Gomathy | 23 | 0 | 0 | 0 | 0 | | |
| 196 | Roja | 25 | 0 | 0 | 0 | 0 | | 40WKS |
| 197 | Padmavathy | 22 | 0 | 0 | 1 | 0 | | |

## Key to Master Chart

S. NO - Serial Number

BMI - Body Mass Index

U/A - Urine Albumin.

HU - Hypertension + Hyperuricemia

HPU - Hypertension + Proteinuria + Hyperuricemia

# Proforma

S. No

Name

Age

Address

Socioeconomic Status

Phone Number

Booking Status

LMP

EDD

Menstrual History

Obstetric History

Previous H/o preeclampsia

Previous H/o chronic hypertension

Previous H/o gout

Previous H/o diabetes

Family H/o

Any H/o Bronchial Asthma / Throid / Cardiac Disorder / Renal Disorder / Epilepsy / Jaundice

## General examination

Height

Weight

Anaemia

Jaundice

Pedal Edema

## Vitals

PR

BP

RR

Systemic Examination

Respiratory System

Cardiovascular System

CNS

Obstetric Examination

# Investigation

Urine Albumin

Sugar Deposits

VDRL

NVP

Blood Grouping & Typing

CBC

Blood Sugar

Sr. Creatinine

Serum Uric Acid

USG Obstetrics

# List of Abbreviations Used

| | | |
|---|---|---|
| BMI | - | Body Mass Index |
| Fig | - | Figure |
| H/o | - | History of |
| HT | - | Hypertension |